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ABSTRACT

Building on previous discussions of Federal information inventory locator systems (FILS), this report explores issues related to FILS and identifies policy and implementation options that can best meet the competing rationales and requirements for FILS. The concept of a Government-wide Information Inventory/Locator System is explored, and it is suggested that such a system should would serve as an authoritative register of all Federal information collection requests, assist agencies in locating government information, and eliminate duplication of information collection. The system would contain citations and abstracts of publicly available U.S. government information, and the name of the agency or source where the information could be obtained. This study: (1) reviews the existing policy system regarding FILS; (2) clarifies the objectives and uses for FILS; (3) identifies key stakeholders (i.e., Federal mission agencies, Federal dissemination agencies, Office of Management and Budget Office of Information and Regulatory Affairs, Congress, public advocacy groups, the library/information science community, the general public, and the private sector); and (4) discusses issues and criteria related to how these systems can meet the needs of the stakeholders. The report assumes that readers are knowledgeable about Federal information policies and information resources management and does not provide a general overview of the existing Federal information policy system. (34 references) (SD)

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FEDERAL INFORMATION INVENTORY/LOCATOR SYSTEMS: FROM BURDEN TO BENEFIT

FINAL REPORT

To:

General Services Administration
Regulatory Information Service Center

and

Office of Management and Budget
Office of Information and Regulatory Affairs

By:

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July 27, 1990

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While we recognize the assistance and involvement of numerous individuals, the views and conclusions in this report are our own and should not be attributed to any other individuals, government agencies, or organizations.

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July 27, 1990

CHAPTER 1 INTRODUCTION

In recent years, Congress has mandated that the Office of Management and Budget, Office of Information and Regulatory Affairs (OMB-OIRA) and, indirectly, the General Services Administration, Regulatory Information Service Center (GSA-RISC), develop and maintain a number of government information inventories. The purposes, requirements, and applications of the various pieces of legislation, however, when taken as a whole, are confusing and ambiguous. Indeed, no comprehensive listing of the various Congressional requirements related to such information locator systems is available.

In response to Congressional requirements, OMB-OIRA has offered policy guidance to Executive agencies for the broad purpose of improving information management. Despite these efforts, a number of Federal agencies appear to have differing views as to their responsibilities regarding information resources reporting and dissemination obligations and they are uncertain about the intent and scope of existing statutory and regulatory requirements. For these, and other reasons, it is likely that a broad range of government information resources are inadequately utilized because they cannot be identified and located (Congress, 1989; Congress, 1990).

Congress, during 1989-1990, has shown a renewed interest in information dissemination policy and the management of government information resources. Draft legislation for the Reauthorization of the Paperwork Reduction Act from both the House (H.R. 3695) and Senate (S. 1742), as well as the American Technology Preeminence Act (H.R. 4329), suggest that additional Congressional requirements for information locator systems may be passed in the near future. These efforts include mandates for a revised Federal Information Locator System (FILS) that are different than the system originally proposed by the Commission on Federal Paperwork (1977).

At the outset of this study, little was known about the degree of consensus among key stakeholders as to which information should be collected for an inventory/locator system; what types of information systems, products, and services should be included in a government-wide inventory; who should collect and maintain the information; and in what form the information should be collected, organized, and disseminated. Indeed, it was unclear if some form of an information inventory/locator system was desirable or feasible.

What was clear, however, was the interest in issues related to an information inventory/locator system among various key stakeholders, including:

- Federal mission agencies
- Federal information dissemination agencies
- OMB-OIRA
- Congress
- Public advocacy groups
- The library/information science community
- The general public
- The private sector.

The study provided a means by which these and other stakeholders could identify the issues and offer ideas and suggestions regarding an information inventory/locator system.

The study, however, is only a first step in exploring issues related to Federal information inventory/locator systems. The study lasted six months (January-June, 1990), was funded for \$24,800, and included contributed time and resources from Syracuse University. Because of these constraints, some interesting and potentially useful areas of investigation did not receive the attention they deserve, and some findings and comments from study participants, not directly central to the study but of interest to larger information policy issues, could not be included in this report. In short, the study is a modest first step in addressing issues related to Federal information inventory/locator systems.

Nonetheless, the study identified a number of areas of agreement and some commonly recognized problems among major stakeholder groups. There is general agreement that the existing Federal Information Locator System (FILS) is an ineffective tool for providing access to government information, that a new or revised system is needed, and that specific criteria that might serve as the basis for such a system can be identified. Perhaps most importantly, there is wide agreement across the various stakeholders that some form of an inventory/locator system for government information is both desirable and feasible.

STUDY OBJECTIVES

Given this context, it was the intent of this study to review the existing policy system regarding inventory/locator systems, clarify the objectives and uses for such systems, and discuss issues and criteria related to how such systems can best meet the needs of both government agencies and the general public. Findings from this exploratory study should assist in refining the concept of an inventory/locator system and in suggesting possible steps that can be taken in the development of such a system. More specifically, the study aimed to:

- Identify and assess legislative and regulatory requirements for government information/inventory systems
- Review existing efforts to meet these legislative and regulatory requirements
- Identify and describe key concepts and issues related to the development of an inventory/locator system, from the perspectives of various stakeholder groups
- Suggest "next steps" that can be undertaken by OMB-OIRA to take the lead in the development of an inventory/locator system within the Federal government.

The conclusions and "next steps" offered in Chapter 5 are intended to (1) minimize and simplify the demands on agencies having to supply information, (2) maximize the ability of locator systems to meet Congressional and agency requirements, and (3) improve public knowledge about and access to such information inventory/locator systems.

This report does not provide an overview of the existing Federal information policy system and assumes that readers are knowledgeable about both Federal information policies and Federal information resources management (IRM). Introductory information on Federal information policy can be found in Hermon and McClure (1987); McClure, Hermon and Relyea (1989); and McClure and Hermon (1989). Background information on Federal IRM can be found in Caudle and Levitan (1989) and in Bishop, Doty, and McClure (1989).

KEY TERMS AND CONCEPTS

While it is beyond the scope of this report to review Federal information policy development, it is important to begin with the introduction and definition of a number of key terms and concepts. Generally, key terms such as "access" and "dissemination" are used in this report as described and defined in OMB Circular A-130 (Office of Management and Budget, 1985). Some terms used in this report, however, require additional comment.

For convenience, we will refer to the concept of a government-wide information inventory/locator system as a GILS. The term is used both to separate such a system from the existing FILS (Federal Information Locator System) and to begin with a "clean slate" in describing the notion of a locator system. We use the term GILS to mean an information system that contains, minimally, (1) citations and abstracts of publicly available U.S. government information, regardless of format (e.g., print or CD-ROM) or type of information (e.g., statistical or scientific), and (2) the name of the agency or other source where the information can be obtained. "Government-wide" indicates scope of coverage, i.e., that the system would include public information from as many sources as possible from the various government departments, agencies, and offices. Government-wide does not mean centralized.

Another concept that deserves some comment is that of information resources management (IRM). As Federal policy, IRM has its origins in the Paperwork Reduction Act of 1980 (P.L. 96-511) and the Act's reauthorization in 1986 (P.L. 99-500). The latter statute extends Federal IRM activities specifically into dissemination of government information. Additional discussions of Federal IRM appear in "Federal Information Resources Management" (Office of Management and Budget, 1985) and in "Second Advance Notice of Further Policy Development on Dissemination of Information" (Office of Management and Budget, 1989).

These statutes and guidelines suggest that IRM "means the planning, budget, organizing, directing, training, and control associated with government information" (Office of Management and Budget, 1985, p. 52735). The study team, however, views IRM in perhaps a broader context—a context proposed originally in the Paperwork Reduction Act of 1980 (Section 3501), in which IRM is to "maximize the usefulness of information collected by the Federal Government [and] improve service delivery and program management." Thus, we use the term IRM to mean the following:

IRM is both a philosophical and practical approach to managing government information resources. The term suggests that information is a resource, has value, should be managed with the care given to other types of organizational resources, and should contribute directly to accomplishing organizational goals and objectives. As such, IRM provides an integrative view for managing the entire life-cycle of information, from generation, to dissemination, to archiving and/or destruction, and for maximizing the overall usefulness of information.

The IRM concept carries with it an imperative to view information and information technology as an integrating factor in the organization, that is, that the various organizational positions that manage information are coordinated and work together toward common ends. Further, the IRM concept includes an imperative to look continually for ways in which the management of information and the management of information technology are interrelated, and to foster that interrelationship and organizational integration as much as possible.

IRM is not simply the management of information technologies. As used in this report, IRM includes the management of (1) the broad range of information resources, e.g., printed materials, electronic information, microforms, etc., (2) the various technologies and equipment that manipulate these

resources, and (3) the people who generate, organize, and disseminate those resources, in order to accomplish specific organizational objectives. Overall, however, the intent of IRM is to increase the usefulness of government information both to the government and to the public.

Finally, we encountered some confusion regarding the term "user" during the study. Users of a GILS can be individuals from any of the stakeholder groups listed previously in this chapter. Users are not limited only to individuals from the general public. Indeed, one of the most important user groups of a GILS would include individuals from the various Federal agencies. Thus, the term "users" includes both government users as well as users from the public.

IMPORTANCE OF THE STUDY

Currently, there are competing rationales and requirements for Federal information inventory/locator systems. In addition, since the original proposal for the FILS, Federal attention has shifted somewhat from paperwork reduction and control to ensuring adequate access to and dissemination of government information. With a new administration and the increased likelihood of new legislation related to government information management, the time is ripe to assess the current policy situation.

While current interest in FILS by Congress, OMB, and others is useful, this interest has yet to focus on larger policy issues and discuss those issues in a broader context of access to government information. The original intent of FILS and its history have been described elsewhere (Commission on Federal Paperwork, 1977; OMB Watch, 1990). While paperwork reduction and efficiency in the management of government information are important, the government's responsibilities for providing access to and disseminating information is equally important—especially as we move into the electronic age (Perritt, 1989; Congress, 1986).

In recent years, a number of studies have commented on problems and difficulties in accessing government information and the manner in which government information is disseminated (e.g., Hernon and McClure, 1987; Office of Technology Assessment, 1988; and Morton, 1989). Important themes in many of these assessments are the decentralized mechanisms by which government information is collected and generated and users' inability to access information effectively across the many agencies that have information on a particular topic of interest.

Informing the Nation (Office of Technology Assessment, 1988, p. 277) concluded that "scholars, researchers, and librarians have for years pointed out the need for improved indexing of Federal information." Further, there was consensus "in and out of government for the establishment of a government-wide index to major Federal information" (p. 277). The report, however, did not identify specific criteria to guide the development of such an index, nor did it propose specific approaches for its design and development.

More recently, a draft report by the National Academy of Sciences (1990) states that "creation of a national 'Central Information Locator' should be started ... if we do not know what data exist and where they are, they are of little or no value to us" (p.7). The report continues:

And just as in a library, where one can go to the card catalog and build a reference list or bibliography, the researcher should be able to start from a master directory of information and search down through individual directories to individual data sets. Therefore, the development of such a directory is an issue of major national concern.

While such references recognize the usefulness and importance of some type of a GILS, few investigations into the specifics of such a system have been conducted.

The present study builds on previous discussions of information inventory/locator systems, discusses various issues related to such systems, and identifies policy and implementation options that can best meet these competing rationales and requirements. The study provides a framework for OMB-OIRA to determine appropriate strategies for meeting its Congressional mandates and for providing better access and control over a range of Federal information.

STUDY METHOD

Data for this study were collected between January and June of 1990 using three basic techniques. Government-wide and agency-specific policy instruments dealing with information inventory/locator systems were identified and reviewed. The study team conducted individual and group interviews on the broad topic of GILS with representatives of key stakeholder groups. Public comments on a GILS were solicited through a notice in the Federal Register. Each of these data collection activities is described below.

Analysis of Key Policy Instruments

Fifty-one policy instruments were analyzed that, directly or indirectly, mandate or affect the creation of an inventory/locator system. The policy instruments include government-wide and agency-specific statutes, plus numerous executive and legislative branch directives, circulars, and guidelines (Office of Technology Assessment, 1988). Figure 1-1 summarizes the types of policy instruments that were reviewed for the study. Appendix A lists all the instruments reviewed. Instruments were identified by the study team or brought to the attention of the study team by OIRA staff or other participants throughout the course of the study.

Clearly, additional policy instruments could have been candidates for review and analysis. For example, a recent Congressional Research Service report identified 317 public laws from the 95th through the 100th Congresses affecting information policy and technology (Chartrand, 1989). Nonetheless, the policy instruments listed in Appendix A give a general sense of the existing information policy system related specifically to government information inventory/locator systems.

The government-wide statutes that were selected are cornerstones of Federal information policies having a major impact on the development of government information systems generally and information locator/inventory systems in particular. The Office of Management and Budget (OMB) circulars, bulletins, and memoranda were chosen because they are the primary mechanisms by which the government-wide statutes are interpreted and implemented. The proposed policy instruments were reviewed because they indicate current Congressional thinking about information policies and information inventory/locator systems. A selection of agency-specific statutes were reviewed to provide an indication of the breadth and content of information locator/inventory systems currently mandated by Congress.

FIGURE 1-1: SELECTED POLICY INSTRUMENTS

Type of Policy Instrument	No. Selected for Analysis
Government-wide Statutes e.g., 44 U.S.C. 1701-1722, Distribution and Sale of Public Documents	11
Agency Specific Statutes e.g., P.L. 93-275, Federal Energy Administration Act of 1974	24
Office of Management and Budget Circulars, Bulletins, and Memoranda e.g., Circular A-130, "Management of Federal Information Resources"	12
Proposed Legislation e.g., Federal Information Resources Management Act of 1989, S. 1742	4
Total	51

Basic characteristics of the instruments were identified and assessed:

- Definition of key terms
- Purpose of the policy instrument
- Purpose of the inventory/locator system
- Agencies responsible for managing and operating the system
- Agencies responsible for submission
- Dissemination/availability, including costs/fees, intended audience
- Operating procedures, including type of information to be included and method of submission
- Other key factors.

Analysis centered on these characteristics because they are important for an understanding of the existing policy landscape of government information inventory/locator systems. Assessment of the instruments led to an analysis of key, issues and trends related to the design of a GIILS and also revealed some problems in the existing policy system.

Stakeholder Interviews and Discussions

The study team also analyzed existing policies and ideas concerning government information inventory/locator systems by conducting a number of interviews, discussions, and consultations with key stakeholders from both the public and private sectors. A wide range of people, including agency program managers and information specialists, Executive and Legislative policymakers, and

representatives from the government's central management agencies, from not-for-profit groups, and from the information industry, participated in these data collection activities. Data collection occurred from January-May, 1990. Figure 1-2 describes the participants in these interviews more specifically.

FIGURE 1-2: OVERVIEW OF INTERVIEW PARTICIPANTS

1. Group interview/discussion sessions were conducted with approximately 50 participants (size of groups ranged from 2-12 people) representing:
 - Federal Publishers Committee
 - Federal Information Resources Managers Policy Council
 - National Technical Information Service
 - Federal Trade Commission
 - Government Printing Office
 - General Services Administration, Federal Information Centers
 - U.S. Congress, Committee Staff
 - The private sector information industry
2. Individual interviews/discussion sessions were conducted with 14 persons representing:
 - General Accounting Office
 - U.S. Congress, Committee Staff
 - GPO Depository Librarians
 - Office of Management and Budget, Office of Information and Regulatory Affairs
 - General Services Administration, Regulatory and Information Services Center
 - Government Printing Office
 - Information resource management consultants
 - Office of Science and Technology Policy
3. Group Consultation
 - Bauman Family Foundation Group Consultation on Federal Information Locator Systems (composed of approximately 20 individuals representing the private sector, public advocacy groups, Congress, Executive agencies, library associations, and academics, knowledgeable about Federal information policies and information resources management).

This data collection activity allowed the study team to gain first-hand knowledge about the intent of policymakers and the perceptions, concerns, and degree of consensus among key stakeholders. Existing efforts to meet legislative and regulatory requirements were explored. Participants also contributed valuable suggestions related to the development of inventory/locator systems and policies.

A number of the group interviews were semi-structured, with participants addressing general areas or specific questions posed by the study team members. Other sessions were less controlled, with the participants raising the topics and issues of most concern to them. Sessions often concluded with the participants' review of and final comments on key points. At least two members of the study team participated in each discussion or interview. Extensive notes were taken by study team members. These were later compared and discussed, and summary assessments of each session were prepared.

At the conclusion of the study, the summary assessments were reviewed independently by several members of the study team, and stakeholder comments were organized according to the research questions that appeared in the Federal Register notice (see Appendix B). Chapter 3 presents the findings from this portion of the study.

Public Comments

Comments regarding an inventory/locator system were solicited through a notice describing the study that appeared in the Federal Register (Vol. 55, April 6, 1990, pp. 12972-12973). Appendix B reprints this notice. The comment period officially ended May 21, 1990, but responses received through June 14, 1990 were included in the study. As of that date, the study team had received 40 responses, ranging in length from 1 to 18 pages. Responses were received from agency program and IRM officers, from representatives of the library and information science community, and from the private sector. A complete listing of respondents to the public notice appears in Appendix C.

The study team developed a preliminary code book of key variables so that all responses could be systematically evaluated and described. After a number of responses had been reviewed, the codebook was modified. All of the responses were then coded, and the data (as appropriate) were entered into an electronic spreadsheet. Members of the study team then produced summaries of the comments.

Chapter 4 reports on the comments received from Federal Register respondents. The comments address many of the same topics and issues identified in Chapter 3—thus, both chapters are organized by the questions listed in the Federal Register. The notice, however, provided an opportunity for any interested party to participate in the study and thus broadened the scope of the data collection.

FROM FILS TO GILS

Although the study considered the work done by the Commission on Paperwork Reduction (1977) and the Paperwork Reduction Act of 1980, the focus of this study is not on FILS. The FILS was mandated by Congress as a result of the Paperwork Reduction Act of 1980 and is, mistakenly, often taken as a government-wide information inventory/locator system. The printed or microfiche version of FILS can be obtained from the National Technical Information Service (NTIS). It is also distributed through the Government Printing Office (GPO) Depository Library Program and can be examined in the OMB-OIRA docket library.

Despite the fact that FILS was not the primary focus of this study, participants commented on FILS, its current operation, its weaknesses, and possible improvements to it. Overall, the findings from this study suggest that the existing FILS is not meeting its objectives, fails to provide adequate access to government information, and provides little assistance in either measuring paperwork burden or reducing Federal paperwork duplication. The original purpose of FILS was to (44 U.S.C. 3507-3511):

- Serve as an authoritative register of all information collection requests
- Assist agencies and the public in locating existing Government information derived from information collection requests
- Eliminate duplication of information collections.

But, in fact, agencies and the general public are less interested in access to information collection requests than they are in identifying and accessing public information.

FILS is an ineffective information system for a number of reasons. First, as a number of OMB officials and agency representatives agreed, there is minimal duplication and overlap in existing information collection activities. While there might be instances where similar kinds of information collection requests are issued, they frequently represent the need for specific types of information that require special data collection techniques and definitions.

Second, some agency participants suggested that FILS may be encouraging additional information collection activities because some agencies use the FILS to (1) determine if a similar information request is already on file, then (2) make certain that their information request is different enough from existing requests to justify making the request. In short, FILS can be used by agencies to circumvent paperwork reduction mandates.

Third, FILS entries are poorly indexed and abstracted. The specific descriptions of the information being collected are superficial and inadequately describe and define the data elements actually being collected. Indeed, the information about the information collection requests contained in each entry is of limited usefulness.

Fourth, FILS does not assist in quantifying reductions in paperwork as mandated in the Paperwork Reduction Act of 1980. The development of the Information Collection Budget (ICB) and the measure, "the burden hour," are ineffective tools and can be easily manipulated. As one writer concludes, "those numbers [ICB and burden hours], built on a foundation of the 'burden' imposed when the government asks for information, bear no relation to the information they are supposed to represent" (Rubinstein, 1990, p. 73).

Finally, it appears that IRM officials in some of the agencies do not see the FILS as a tool for improving IRM in that agency. Specific links between what FILS is and its connection to day-to-day IRM practices have not been made clear to agency information resources managers.

In short, the very name "FILS" is a misnomer; the system is not a Federal Information Locator System, it is a listing of agency information collection requests. A detailed history and overview of FILS can be found in Cabell (1987) and in OMB Watch (1990). The latter source concludes that the history of FILS (p. 16):

Is not something to be proud of. A great deal of time and money was wasted as government decision-makers failed to hold themselves accountable to their own findings, their own mandates. Government management and public access to government information suffered as a result.

Although FILS is a Congressionally-mandated system, it has limited effectiveness and has a very limited audience. The Congressional mandate for the creation of FILS, while well-intentioned, was inadequately conceived and its implementation poorly designed. Yet, such a system must be operated by OMB-OIRA to satisfy existing statutory requirements.

The various problems with FILS point to the need for some type of a government-wide information inventory/locator system. Specific recommendations for improving or enhancing the FILS are beyond the scope of this study. While it might be possible to reconfigure the FILS, this study concentrated specifically on issues, criteria, and recommendations related to a GILS. Therefore, the remainder of this report focuses on the broader concept of a GILS, and not the existing FILS.

SUMMARY

This chapter provides background information on government information inventory/locator systems and has briefly described the objectives and importance of the current study. In addition, it describes the techniques used by the study team to gather and analyze a variety of data related to the development of a government-wide inventory/locator system for public information.

The term GIILS is used throughout the study as shorthand to mean some type of a broadly based inventory/locator system to access, disseminate, and manage government information and does not presuppose specific objectives of such a system, specific types of information to be included in the system, location of the system, or the manner in which such a system might be managed. It simply presents a concept for discussion and a means to begin the process of identifying key issues.

Thus, the current study is intended to provide a basis for identifying and assessing issues related to a GIILS. As such, it is an exploratory effort that provides a framework for additional discussion and debate among the various key stakeholders and, it offers recommendations for activities and research necessary to design and develop a GIILS.

The study was not intended as a formal assessment of the existing FILS, although findings suggest that the system is largely ineffective and does not accomplish its intended objectives. Indeed, the brief discussion of FILS presented in this chapter emphasizes the importance of and need for a true government-wide information inventory/locator system. The role of a GIILS in improving the management and dissemination of government information, not information collection requests, is the primary focus of this report.

IRM and, more specifically, access to and dissemination of government information through information inventory/locator systems are important issues in Federal information policy. As the government increasingly relies on electronic means to collect and organize information, as information becomes more difficult to identify and obtain, and as Federal information systems proliferate, policymakers may wish to give greater attention to ensuring effective management and use of public information. This study offers a beginning point to discuss and debate key issues related to the development of a government-wide information inventory/locator system.

CHAPTER 2

SELECTED POLICY INSTRUMENTS RELATED TO INFORMATION INVENTORY/LOCATOR SYSTEMS

Currently, Federal agencies are required to establish and maintain a variety of information inventories and locator systems. The purposes, requirements, and procedures related to such systems, taken as a whole, can be confusing. Due in part to this piecemeal, decentralized approach to information policy, there is no government-wide inventory/locator system of public information and little oversight of agency compliance with existing policies.

Recently, however, there has been a growing interest in the concept of a government-wide information inventory/locator system (GIILS) to facilitate access to government information. This interest is reflected in a number of current bills such as the Federal Information Resources Management Act of 1989, (S. 1742), the Paperwork Reduction and Federal Information Act of 1990 (H.R. 3695), and the American Technology Preeminence Act (H.R. 4329). There is, however, limited agreement about how systems noted in the bills might be operationalized.

A review of Federal policies related to information inventories and locator systems is needed so that the policy issues and constraints surrounding the development of a GIILS can be identified, discussed, and resolved. The purpose of this chapter is to identify important and representative instruments, provide background information related to the policy framework, and identify and discuss policy issues and trends that may have an impact on the feasibility of implementing a GIILS.

The policy instruments reviewed in this chapter were first described individually in terms of:

- Type and purpose of the system mandated
- Who was designated as bearing responsibility for managing and operating the mandated system
- Who was responsible for submitting information for the system
- The intent of the instrument regarding audience and dissemination
- Operating procedures and content of the mandated system
- Other key points.

The instruments were then assessed in order to gain a better understanding of the policy context as a whole. Appendix A, "Selected Policy Instruments Related to Information Inventory/Locator Systems," provides a list of the policy instruments that were analyzed according to the factors noted above. The original analysis provided the basis for the discussion presented in this chapter, but the complete analysis itself was too lengthy for inclusion in this report.

The review provided in this chapter is selective rather than comprehensive. There are many policy instruments related to inventory/locator systems that are not reviewed here. Nonetheless, the review and assessment represents what may be a first effort to describe the existing policy framework for inventory/locator systems. Additional analysis is, of course, needed. For example, the study team did not investigate the legislative histories of all of the instruments reviewed. Thus, the attempt to understand the policy framework of and possible precedents for a GIILS is limited largely to the language in the instruments themselves.

Further, this chapter is not a formal review of issues and topics related to information policies in general and/or management of and access to government information in particular. Readers interested in such a review may refer to Hernon and McClure (1987), McClure and Hernon (1989), and McClure, Hernon, and Relyea (1989), where a broader presentation of the Federal information policy system can be found. Rather, this chapter focuses on existing and proposed statutes and regulations that may directly affect the development of information inventories and locator systems.

The chapter first presents and comments on a typology of selected instruments, then describes the most relevant and important policy instruments. Finally, the chapter offers an assessment of major policy issues and trends. As part of this analysis, the study team offers its views on the issues and trends. The critique of instruments identifies areas that might be addressed either in the development of new GILS policy or in the development of guidelines to supplement existing policies.

TYPOLGY OF INVENTORY/LOCATOR SYSTEMS

Current statutory and regulatory requirements mandate numerous types of information inventory/locator systems. These systems address different phases of the information life-cycle and are based on different information inputs and system configurations. To better understand the inventory/locator landscape, a typology of systems required by the selected instruments was developed and is provided in Appendix A. This typology provides an overview of the most common design requirements for government information systems, and also suggests trends related to four kinds of policy instruments: government-wide statutes and regulations; OMB circulars, bulletins, memoranda, and regulations; proposed legislation; and agency-specific statutes. The type of system mandated in the policy instrument appears in brackets after the name of the instrument in Appendix A. Definitions for each of the five system categories used in the typology appear below. The first three definitions are based on McClure, Hernon, and Purcell (1986) and McClure (1990).

- Clearinghouse: collects information related to a specific mission; actively solicits such information; evaluates the information received and selects sources (a) related to its topical areas of interest and (b) meeting its standards of quality; provides access to the collected information by developing bibliographic, factual, or statistical databases or directories; serves as a repository for publications found in its databases or directories; and actively markets its information products and services.
- Information Referral Service: provides reference service and makes the requested information available, whatever the format, or indicates where that information can be obtained. Agencies often develop databases for providing such service. The types of "answers" provided may vary from short oral answers to comprehensive bibliographic searches, analytical reports, etc.
- Data Collection Control System: collects information on proposed and/or actual agency activities and programs for an oversight agency. This type of system is typically used for budgetary purposes and approval of activities and programs. The system may or may not be accessible to the public or other agencies who want access to information about agency activities.
- Bibliographic, Factual, Statistical Information System: provides either general or specific bibliographic, factual, or statistical information and might be in one or more formats (e.g., paper or electronic). This type of system, often called "Database" or "Directory," may or may not indicate where the information is available (i.e., be a tool to locate information). It is usually intended for the public to access government information, but is more passive than a clearinghouse or referral service.

- Other: This category includes both 1) unique types of systems not falling into one of the above categories and 2) instruments that carry no statutory requirement for agencies to create an information inventory/locator system but have other impacts on the design of a GILS.

The categories defined above are based on the purpose of the system rather than its format. For example, an instrument might mandate a data collection control system that is implemented as an electronic bibliographic database, but the main purpose of the system is information collection control. In that case, the system category assigned to that policy instrument would be "data collection control system." When the citation to a policy instrument is followed by the name of more than one system category, it is because the instrument has components or aspects based on the purposes described in several categories.

Several basic observations can be made after reviewing the types of information inventory/locator systems required by the policy instruments listed in Appendix A:

- There is a predominance of data collection control systems whose role in information resources management (IRM), as defined in Chapter 1 of this report, is unclear. Such is the case, despite the inclusion of "information dissemination" as an explicit part of IRM in the Paperwork Reduction Act, P.L. 96-511 (Coordination of Federal Information Policy, 44 U.S.C. 3501-3520).
- The only "government-wide" information inventory/locator systems, if we accept that "government-wide" includes the three branches of government are created under Records Management, 36 C.F.R. Ch. XII, since the National Archives and Records Administration has statutory authority (under 44 U.S.C. 2901 (14)) over the legislative, judicial, and executive branches.
- The instruments, taken as a whole, seem poorly coordinated and integrated. One implication of this is that agencies are required to report numerous types of information or data under various government-wide statutes and OMB regulations. The review of just those policy instruments included in this chapter identified the following information reporting requirements:
 - Information collection requests (Paperwork Reduction Act, P.L. 96-511)
 - Information dissemination products and services (OMB Bulletins 87-14, 88-10, 89-15)
 - Documents issued or published and not confidential (Distribution and Sale of Public Documents, 44 U.S.C. 1701-1722);
 - Periodicals and non-recurring publications (OMB Circular A-3)
 - Financial information (OMB Circular A-127)
 - Major information systems (OMB Circular A-130)
 - Productivity plans (OMB Circular A-132)
 - Information collection budgets (OMB Bulletin 89-18)
 - Proposed Regulations (Regulatory Flexibility Act, P.L. 96-3545; Regulatory Impact Analysis and Review, E.O. 12291)
 - Computer matching agreements (Computer Matching and Privacy Protection Act of 1988, P.L. 100-503)
 - Plans for security and privacy of computer systems (Computer Security Act of 1987, P.L. 100-235)
 - Notices of creation or modification of systems of records (Records Maintained on Individuals, 5 U.S.C. 552a; Privacy Act of 1974, P.L. 93-579)
 - Federal domestic assistance programs (Program Information, 31 U.S.C. 6101-6105)
 - Agency rules for public access to information (Freedom of Information Act, P.L. 93-502; Public Information: Agency Rules, Opinions, Orders, Records, and Proceedings, 5 U.S.C. 552)
 - Agency records disposition schedules (Records Management, 36 C.F.R. Ch. XII)
 - Audiovisual products (Records Management, 36 C.F.R. Ch. XII).

This list, which is admittedly incomplete, suggests that agencies must comply with numerous information reporting requirements. There is, in addition, some overlap in the reporting of information dissemination products and services, documents issued or published, and periodicals and non-recurring publications.

- Although there are numerous requirements for inventories, directories, indexes, etc., there is apparently no comprehensive listing of what inventories, indexes, etc., are required. Thus, the degree to which agencies can effectively monitor and comply with these various statutes and regulations is problematic. One might conclude that part of the agency compliance problems with the requirements from these various instruments may be due to the agencies' lack of awareness regarding the requirements and procedures.

These observations are based on a review of the instruments identified by the study team and organized according to our typology. Other issues and trends arising from the analysis of these instruments are discussed below, following a brief description of those policy instruments thought to be most important and relevant to the development of a GIILS.

KEY POLICY INSTRUMENTS

Several of the policy instruments reviewed in this study mandate systems that come close to the definition of a GIILS offered in Chapter 1. These systems, which are intended primarily to improve access to and dissemination of government information, are described below:

- Distribution and Sale of Public Documents, 44 U.S.C. 1701-1722, creates the Monthly Catalog of United States Government Publications, which covers both executive and legislative branches publications:

On the first day of each month the Superintendent of Documents shall prepare a catalog of Government publications which shall show the documents printed during the precedent month, where obtainable, and the price (44 U.S.C. 1711).

Chapter 17 of the United States Code does not provide a definition of "Government publications." However, 44 U.S.C. 1718 "Distribution of Government publications to the Library of Congress," states that Government Publications include:

- House documents and reports, bound
- Senate documents and reports, bound
- Senate and House journals, bound
- public bills and resolutions
- the United States Code and supplements, bound
- all other publications and maps which are printed, or otherwise reproduced, under authority of law, upon the requisition of a Congressional committee, executive department, bureau, independent office, establishment, commission, or officer of the Government.

As this report is written, the proposed Government Printing Office Improvement Act of 1990 (H.R. 3849), offers language to clarify and define the term "government publications."

- "Report and Inventory of Government Information Dissemination Products and Services," OMB Bulletin 87-14; "Report on Government Information Dissemination Products and Services," OMB Bulletin 88-10; and "Report on Obligations for Government Information Dissemination Products and Services," OMB Bulletin 89-15 (annual data call for implementing requirements of OMB Circular A-3 and OMB Circular A-130) which creates the Listing of Agency Information Dissemination Products and Services:

OMB will arrange for the establishment of an electronic database that will be a government-wide inventory of information products and services and will be accessible to the public (OMB Bulletin 87-14, section 8).

OMB Bulletin 88-10 essentially maintains the requirements established by OMB Bulletin 87-14. Changes occur in OMB Bulletin 89-15, where agencies are required to maintain and submit their annual inventory of information dissemination products to a "central collection point for compilation into a government-wide index for locating government information" (Section 4 b).

This inventory is, in fact, not government-wide, but represents the Executive branch only. Two listings have been done for 1987 and 1988. In 1989, a "collection point" was intended to complete the compilation of all the inventories submitted by the agencies, but "OMB deferred to a later date the call for agencies to submit inventories to a central collection point" (OMB Bulletin 89-15, section 4 d). Instead, OMB asked agencies to maintain their own inventories "as an index for locating government information" (OMB Bulletin 89-15, section 4 b).

- Federal Information Centers (40 U.S.C. 760), which directs the General Services Administration (GSA) to maintain a network of Federal information centers, defined as a:

Network of Federal information centers for the purpose of providing the public with information about the programs and procedures of the Federal government and for other appropriate and related purposes.

The Federal information centers answer some 2 million requests annually. As of July 1990, the operation was privatized and is now managed by Biospherics, Inc., under the supervision of GSA.

- Dissemination of Technical, Scientific and Engineering Information, 15 U.S.C. 1151-1157, which creates the National Technical Information Service (NTIS). NTIS acts as a central clearinghouse for technical, scientific, and engineering information:

The Secretary of Commerce ... is directed to establish and maintain within the Department of Commerce a clearinghouse for the collection and dissemination of scientific, technical, and engineering information, (15 U.S.C. 1152).

It should be stressed, however, that the language in 15 U.S.C. 1151-1157 applies only to scientific and technical information.

Other policy instruments mandate various types of information inventory/locator systems that are not as comprehensive in scope as those discussed above. Most significant among these are:

- Records Management, 36 C.F.R. Ch. XII, which directs Federal agencies to "inventory all records in the custody of the agency; formulate specific disposition for each series of records ... ; assemble the disposition instruction for each series of records into a comprehensive agency records disposition schedule" as a basic element of disposition programs.

- The National Audiovisual Center (NAC) (36 C.F.R. 1232.6) which acts as a central source of information on Federal audiovisual production for the public and Federal agencies. The NAC produces government-wide catalogs and a databank on Federal audiovisual products:

[The National Audiovisual Center] compiles and publishes Government-wide catalogs and uses other information dissemination techniques to inform the public about audiovisual products available for sale or rent [It] maintains a data bank containing information on Federal audiovisual productions.

- Congressional Information (31 U.S.C. 1113 (c)(1)) which requires that a Directory of Information Systems be created by the General Accounting Office. Specifically, the Comptroller General:

In cooperation with the Director of the Congressional Budget Office, the Secretary of the Treasury, and the Director of the Office of Management and Budget shall establish and maintain a current directory of sources of, and information systems for, fiscal, budget and program information and a brief description of the contents of each source and system.

- Paperwork Reduction Act, (P.L. 96-511), which mandates the creation and maintenance of the Federal Information Locator System (FILS). FILS should serve as:

The authoritative register of all information collection requests, and shall be designed so as to assist agencies and the public in locating existing Government information derived from information collection requests (44 U.S.C. 3511).

The study team's assessment of the Paperwork Reduction Act of 1980 and its Reauthorization in 1986, as well as OMB Bulletins 87-14, 88-10, and 89-15, suggests that OMB has adequate authority to require some form of a GILS. Indeed, the Listing of Agency Information Dissemination Products and Services is a type of GILS.

These statutes and regulations appear to be the key policy instruments directing the implementation of government-wide information inventory/locator systems. It is important to understand their basic features because any proposed GILS must somehow be integrated with the requirements of these instruments and with the policy and operational constraints they entail. Numerous other requirements for reporting government information and implementing systems exist that are agency-specific. There appears to be some overlap and contradiction among the instruments, and it is likely that agencies must expend considerable resources to comply with the various requirements.

KEY ISSUES

The following section describes key issues that were identified as a result of the assessment of the various policy instruments reviewed and listed in Appendix A. These issues are helpful for understanding the context in which a GILS would have to operate. Further, they suggest areas where policy makers may wish to conduct additional analysis.

Information Inventory/Locator System Goals

The information inventory/locator systems mandated by the policy instruments reviewed are generally created for two reasons:

- Internal purposes, e.g., for effectiveness of information management (such as better control, reduction of duplication, and increased cost-effectiveness)
- External purposes, e.g., to support an informed citizenry and enhance American competitiveness.

The internal purpose may or may not include dissemination or assistance in locating information.

Clarity of Purpose

The purposes of the agency-specific systems are generally poorly stated, if stated at all. There is often confusion between the objectives of the systems and their functions. Since it was sometimes impossible to find a stated purpose for the systems, we reviewed the functions (if given) as a means of extrapolating to what the system was intended to accomplish.

In the government-wide statutes, clarity of purpose also varies. For example, FILS is intended "to assist agencies and the public in locating existing Government information derived from information collection requests." The term "information derived from information collection requests," however, can be interpreted in several ways. Another example is in Distribution and Sale of Public Documents, 44 U.S.C. 1711, where no objective is stated for the Monthly Catalog of United States Government Publications. Instead, only the functions of the system are given.

The proposed legislative policy instruments have clearer objectives. The Federal Information Resources Management Act of 1989 (S. 1742) broadens the purpose of the Federal Information Locator System, by adding that it should help agencies and the public to locate "government information," rather than "government information derived from information collection requests." The Proposal for an Executive Order: "Facilitating Access to Scientific, Technical, and Business-Related Information" (National Technical Information Service, 1990a) introduces the idea of a network of federal information disseminators as facilitators for information transfer. But this notion is also poorly defined, and the objectives of such a program are unclear.

A few of the instruments mandate systems that have dual purposes: they are intended to improve both data control and public dissemination. Systems that are intended to serve multiple purposes may need to be more comprehensive, including different data elements, collection procedures, reporting techniques, etc., in order to accomplish different objectives. For example, the inventory/locator system mandated by OMB Bulletin 87-14 (and updates 88-10 and 89-15) is intended both for data control (approvals for publications expenditures) and for locating government information products and services. For this later purpose, OMB suggested that agencies provide abstracts and keywords. Agencies, however, frequently did not provide such information because they perceived the inventory as a control system in the spirit of paperwork reduction. Thus, the final output, Listing of Agency Information Dissemination Products and Services, has limited utility (OMB Bulletin 89-15).

The same issue of dual and sometimes "competing" objectives applies to the Federal Information Locator System (FILS), which is a data control system for eliminating duplication of information collection requests, but is also meant to be used as an information locator system by the public. FILS, available since June 1989 through NTIS, has had limited success in meeting both objectives.

With good system design, it is possible that objectives for data control and public dissemination can be mutually supportive. Frequently, however, Federal inventory/locator systems are required (or intended) to meet both objectives, and (1) accomplish neither objective well, or (2) accomplish data control objectives at the expense of public access and dissemination. Goals are statements of what an

organization or system hopes to achieve and suggest means to implement appropriate activities and develop proper measures of control. Well-defined purposes and objectives would help ensure that any inventory/locator system required by statute could be implemented and evaluated effectively.

Relationship Between IRM and Inventory/Locator Systems

Most of the statutes fail to link the development and operation of an inventory/locator system to IRM goals in general, and to IRM functions within the agency, specifically. One might argue that IRM is a relatively new phenomenon in the Federal government and, thus, the statutes and regulatory guidance have yet to link the concept with inventory/locator systems. But newer statutes, e.g., 15 U.S.C. 4901-4913 (The National Trade Data Bank), also provide little mention of the relationship between IRM goals and inventory/locator systems. This omission may lead agencies to believe that inventory/locator systems are not related to the IRM function, that successful IRM may not require an inventory/locator system of either agency-specific or government-wide information resources, and that dissemination is not a critical responsibility in IRM. Results reported in Chapters 3 and 4 support this hypothesis. The result is that inventory/locator systems are not seen as part of IRM and may, in fact, not be administratively linked to IRM functions.

Role of Information Dissemination

The focus in many of the policy instruments is on access to government information rather than dissemination. There is an important distinction between the two concepts. Access to information refers to "government's responsibilities ... when the public comes to the government and asks for information the government has and the public is entitled to" while dissemination of information "refers to those situations in which the government provides the public with information without the public having to come and ask for it" (Office of Management and Budget, 1985, p. 52735). Providing access is a passive role for the agencies. Dissemination is a proactive role for the agencies.

In many of the instruments, the two terms are used synonymously or quasi-synonymously. The policy instruments provide little clear guidance to the agencies on how to make their inventory/locator accessible or how to disseminate their information, except, as suggested in OMB Circular A-130, to rely as much as possible on the private sector for dissemination and on the Depository Library Program as a "safety net." While one can recognize that only recently has there been significant attention to dissemination issues, the policy instruments can be updated to better stress dissemination. In short, dissemination tends to be a neglected component in the policy instruments' discussions of inventory/locator systems.

Terminology

The terminology used in the policy instruments is, as one might expect, not always clear or consistent. While such lack of specificity may result from policy makers' deliberate choice, agencies may then implement policies and procedures without a clear sense of the overall goals of Federal information policy and the specific objectives of particular statutory requirements, despite the availability of legislative histories, reports, and hearing testimony.

One example can be found in OMB Circular A-3, where the definitions of periodicals and non-recurring publications cover all the printed documents issued by the executive agencies, including books, directories, and reports. How are these documents different from "government publications"? This

problem is especially evident in the agency-specific policy instruments. Terminology used in one statute for one particular agency can vary considerably from that used in another statute for another agency -- different terms are used to express the same concept or the same term is used to express different concepts.

There are numerous instances in the policy instruments where the terms "government-wide" or "Federal" imply an inventory/locator system covering all branches of government when, in fact, it covers only specific agencies or only the Executive branch. Therefore, the term "government-wide" is an overstatement which can mislead the public, agency officials, and policy makers. In fact, OMB cannot create a "government-wide" inventory/locator system, since it does not have the statutory authority to request compliance from judicial and legislative branches.

In addition, the phrases "reasonable fees" and "reasonable public access" are too vague to be of much help to agencies when implementing fees and establishing public access to their information resources. Such vagueness can lead to a large disparity in the quality and nature of the inventory/locator systems, and thus, their usefulness to users. Similarly, terminology such as "appropriate" to define the items for inclusion in the system contribute to ambiguity found in many of the instruments.

Problems related to terminology may be related to the unclear goals and objectives of many government information systems. On the other hand, agency flexibility in interpreting statutory and regulatory mandates is, of course, essential, and Congress is not in the business of micro-managing the agencies. In spite of the need to build in flexibility, clearer indications from Congress, OMB, GSA, and other agencies regarding the overall direction and tenor of Federal information policy, including system goals and fee structures, are needed. Specific guidelines should be promulgated which clarify and specify those policy instrument requirements which are very general. Without clear policy guidelines that provide criteria for terms such as "adequate public access" or "reasonable fees," the effectiveness of inventory/locator systems may be severely damaged.

Standards

At the government-wide level, there is no standard policy regarding the collection, classification, presentation, and dissemination of Federal information, except for statistical information (44 U.S.C. 3504) and audiovisual products (36 C.F.R. 1232.6). Therefore, there is no integrated or uniform manner in which agencies report information required under different statutes.

Moreover, cataloging or description of information or documents is required under different instruments, such as 44 U.S.C. 1701-1722, 15 U.S.C. 1151-1157, and 42 U.S.C. 286. There is no language requiring use of standards or recognized cataloging methods, like the Anglo-American Cataloging Rules (AACR2), Machine-Readable Cataloging (MARC) format, or American National Standards Institute (ANSI) standards. AACR2 is probably the most widely-used standard in the library community for descriptive cataloging. It is also the standard used in on-line public access catalogs. Use of such standards is essential to the development of integrated information systems with adequate quality control.

Similarly, in OMB Bulletin 87-14, agencies are encouraged to include keywords and abstracts in their inventories of information dissemination products and services, but no specification is given regarding which (if any) thesaurus to use, nor does the instrument describe the form that abstracts (e.g., analytical or descriptive; length, etc.) should take.

In recent years, policy instruments have required agencies to report their information in machine-readable format. When such requirements are made, specifications are seldom given regarding the type of software (e.g., word-processor or database management system) or files (e.g., software-based or ASCII file) to use. This lack of standardization creates a significant burden on any agency responsible for collecting and integrating such information. Despite great progress in software engineering, conversion and transfer of data from one system to another is not always easy, transparent, or accurate.

System Inputs and Configurations

The format of information inputs required by some instruments can become an artificial barrier unnecessarily limiting the scope of an inventory/locator system. For example, audiovisual products are excluded from the Inventory of Government Information Dissemination Products and Services (OMB Bulletin 87-14). While audiovisual products are addressed in OMB Circular A-114, the impact on the user is that multiple inventories/locators must be reviewed to obtain a comprehensive listing of government information resources.

Statistical information is also excluded from some information policies because of its special status under 44 U.S.C. 3504. Thus, when OMB sets government-wide policies related to the collection, classification, presentation, and dissemination of information, they typically exclude statistical information. While there may be good reasons to attempt to de-politicize statistical information, separating it from inventory/locator systems, again, forces users to be aware of and consult multiple listings of information resources.

There is also some ambiguity regarding the inclusion/exclusion of scientific and technical information (STI) in Federal information systems. While it is the clear mandate of the NTIS to collect and disseminate technical, scientific, and engineering information (15 U.S.C. 1151-1157), nothing in 44 U.S.C. 1701-1722 explicitly excludes STI from the Monthly Catalog of United States Government Publications. The definition of "Government publication" (44 U.S.C. 1901 and OMB Circular A-130) would appear to include STI publications. STI, however, is widely dispersed among government agencies and information systems, thereby requiring users to consult multiple inventories and locators.

Many of the instruments do not describe the components, configuration, and content for the inventory/locator systems they mandate. Among the exceptions are 44 U.S.C. 1701-1722, which specifies that the Monthly Catalog of United States Government Publications should include the description of documents published during the previous month, the price and the location; and 44 U.S.C. 3511, which describes that the Federal Information Locator System should have three parts: a directory of information resources, with a data element dictionary, and an information referral service; an indexing system; and the data profile of each agency information collection request.

A key issue is the degree of specification and detail that should be included in the policy instruments regarding system content and configuration. At a statutory level, specific detail may be inappropriate, but criteria and guidelines could be (but typically are not) included. At the regulatory level, one might expect more specific guidelines and procedures for system content and configurations, but, again, they rarely appear.

New Information Technologies

Policy instruments frequently do not mention the use of new information technologies such as CD-ROM, full-text databases, etc., nor do they recognize the impact of the new information technologies on the management of government information. While this is to be expected for instruments enacted before the widespread use of such technologies, language which left open the possibility of using new technologies would allow agencies more flexibility in system formats.

In spite of the decreasing cost of high-capacity storage media (such as CD-ROM), and the increasing reliability of electronic information formats, one notes little mention or reference to such technologies. In short, the instruments tend to refer to and rely on very traditional information technology for inventory/locator systems. This suggests that, as a group, the various instruments related to inventory/locator systems need to be updated in light of the potential applications and uses of the new information technologies.

Indeed, this problem of updating policy instruments in light of the new information technologies is at the heart of the current controversy surrounding the proposed definition for "government publication" in H.R. 3849. The various policy instruments related to inventory/locator systems have yet to be "updated" and reassessed regarding the new information technologies.

Policy Enforcement

There is often no language detailing oversight responsibilities or the repercussions for any agency that fails to comply with a statute. For example, there is minimal enforcement of 44 U.S.C. 1701-1722 to ensure submission of publications to the Government Printing Office. OMB officials also acknowledged that they have limited means to ensure compliance with dissemination requirements. There appears to be greater enforcement for the submission of information to OMB when it is for paperwork control, e.g., the submission of information collection requests.

Sources for policy enforcement of inventory mandates are the Congressional oversight committees, OMB, GAO, and the agencies themselves. Each of these has a role to play in ensuring that the required information is collected, organized, reported, and disseminated from the various inventory/locator systems. These roles can be better defined and coordinated. Statutes and regulatory guidelines can help in this coordination by assigning particular responsibilities for enforcement and oversight to specific actors.

Responding to Users' Needs

The policy instruments show little concern for how people use information systems and how an inventory/locator system could be oriented toward meeting user's information needs. There are few provisions in the policy instruments requiring a market survey as a basis for designing an inventory/locator system, or to assess, after a certain period of time (e.g., one year after the enactment of an act), the use of the system by the targeted clientele. For example, 44 U.S.C. 3501-3520, requires that OMB reports to the Congress ways to enhance public access to the information collection requests. But it does not address basic questions, such as:

- Is the information collection request a type of information users want?
- Is the inventory/locator system, itself, designed in such a way that users find it useful?
- What information needs of particular target groups are being met by this system?

Even if the inventory/locator system is easily accessible, it may have minimal usefulness if it does not provide information that people need.

The same observation can be made for other statutes. For example, 15 U.S.C. 1151-1157 does not discuss the importance of the database being responsive to meeting the information needs of scientists, engineers, and other professionals. Some of the proposed instruments do, on the other hand, show a concern for users' information needs. The proposed American Technology Preeminence Act (H.R. 4329, p. 50), includes "representatives of users" in the consultation group for designing FEDLINE:

To consult with officials from appropriate Government agencies, including the Office of Management and Budget, the National Archives, the Government of Printing Office, and the National Institute of Standards and Technology, and with the representatives of the public, for their views on optimal composition and format of FEDLINE.

The Proposal for an Executive Order "Facilitating Access to Scientific, Technical, and Business-Related Information" (National Technical Information Services, 1990a) requires an annual report describing, among other things, the utilization of the NTIS Bibliographic and FEDRIP databases by the user community. The proposed Federal Information Resources Management Act of 1989 (S. 1742) requires that a Commission on Federal Information be formed to study statutes, policies, rules, regulations, procedures, and practices of the Federal Government relating to information gathering, processing, analysis, and dissemination. While these proposals are good efforts at addressing issues related to user information needs, the language does not specifically require identification of users' information needs and determination of government information systems' success in meeting those needs. Even these proposals, however, are the exception rather than the rule.

System Evaluation

The policy instruments do not require regular system evaluation, nor do they provide guidance on how to evaluate system success. They also do not require reporting of the extent to which agencies are (1) complying with statutory requirements or (2) assessing system implementation. This is partly due to poorly stated objectives for the inventory/locator system in the policy instruments. Evaluation is often overlooked, especially when inventory/locator systems are created primarily to encourage public access to government information. The Proposal for an Executive Order "Facilitating Access to Scientific, Technical, and Business-Related Information" is among the exceptions, by offering language to establish accountability of agencies. It states that (National Technical Information Services, 1990a):

The Secretary of Commerce shall ensure that [the annual] report include at least the following:

1. an evaluation of the comprehensiveness of the information contributed by each department and agency;
2. a description of the utilization of the NTIS Bibliographic and FEDRIP Databases by the user community;
3. an estimation of the impact of the databases on the dissemination of federal information; and
4. recommendations for improving access to federal information by the user community.

This language can help ensure that both the public and oversight bodies have some mechanism for evaluating information inventory/locator systems and then using that evaluation to improve systems' performance.

User Training

Related to inadequate attention to users' information needs is limited attention to (1) training programs to assist agencies in the development, implementation, and evaluation of inventory/locator systems and (2) user training to operate the various inventory/locator systems. While one may not expect such language at a statutory level, regulatory guidelines could address this issue. Training is an essential component of an effective information inventory/locator system.

While some agencies have committed significant resources to training, e.g., the Bureau of the Census and the National Library of Medicine, there is generally little policy attention to this topic. Who is responsible for training? How will such training be provided? None of the analyzed instruments adequately address this issue. The instruments assume that simply mandating a system will ensure that people will know (1) how to design and implement it, and (2) how to use it effectively.

Primary Reliance on the Private Sector to Disseminate Information

There is a potential contradiction within and among the policy instruments regarding the relationship between the private sector and the government in disseminating government information. The issue has been widely discussed by various critics of the Paperwork Reduction Act (P.L. 96-511) and OMB Circular A-130, (see, for example, Hernon, 1986). One of the goals of the Paperwork Reduction Act is to minimize the cost to the Federal government of disseminating information, while maximizing the usefulness of such information. In order to achieve that goal, agencies are advised, in Circular A-130, to rely as much as possible on the private sector to disseminate their information and to use the Depository Library Program as a "safety net." Primary reliance on the private sector as a disseminator of government information may reduce access to government information.

Some stakeholders have argued that dissemination of value-added information products and services may not be a governmental function. Such policy may not be cost-effective, since it could lead to products and services with limited usefulness. Limiting the agencies' ability to produce value-added information products and services assumes that the private sector will provide such value-added tools. Policies might be developed by OMB describing the types of value-added services and products that agencies might attach to the inventory/locator systems without being charged with unfair competition by the private sector.

Commitment of Resources

Inventory/locator systems cannot be designed, implemented, and operated effectively without adequate resource support. Very few policy instruments clearly note the need to commit additional resources to create the inventory/locator system required. Apparently, the assumption is that individual agencies will "find" the necessary resources or reallocate existing resources. Ineffective systems may result from statutes and regulations requiring some type of an inventory/locator system with no or inadequate appropriations to implement the mandate.

This issue received considerable attention during the interviews conducted by the study team (see Chapter 3). Many agency representatives complained bitterly about Congressional or regulatory requirements to construct a particular information system without providing the resources to do so. The analysis of the policy instruments confirmed the interviewees' assessment that appropriations frequently were not made to support the development of a particular inventory/location system.

Instrument Content and Policy Level

Another issue that the review identified is that often the level of information or the detail of policy guidance is inappropriate to the type of instrument. Statutes provide the broadest and most general policy direction, regulatory policy more specific guidance, and agency policies offer the most detailed guidance. However, the analysis found instances where statutes provided detailed instruction regarding a particular information locator system (PL 101-239), and instances where regulatory guidance did not provide enough detail (OMB Circular 87-14). Policymakers may wish to review the various instruments and consider what level of generality and detail is appropriate among these three levels of policy making.

TRENDS

In recent years, there has been increased interest by Congress and other stakeholders in the development of Federal information policies. This has brought some changes, especially at the government-wide level, in the perception of how government information should be managed and how Federal inventory/locator systems might be developed. Based on the review of the policy instruments, the following section identifies a number of emerging trends related to inventory/locator systems.

Increased Interest in Inventory/Locator Systems

The American Technology Preeminence Act (H.R. 4329) and the Federal Information Resources Management Act of 1989 (S. 1742) are two instruments which address the creation of a comprehensive inventory/locator system. H.R. 4329 (p. 50) requires a feasibility study for establishing FEDLINE. FEDLINE would "serve as a comprehensive inventory and authoritative register of information products and services disseminated by the Federal Government and assist agencies and the public in locating Federal Government information."

Because OMB, the National Archives, the Government Printing Office, the National Institute of Standards and Technology, and representatives of the public are to be consulted by NTIS in the design of FEDLINE, there may be a willingness to cover at least legislative and executive branch information and to include information, without regard for its format. However, one wonders if NTIS would concentrate primarily on STI at the expense of other types of information in designing FEDLINE.

S. 1742 (pp. 42-43) requires the Administrator of OIRA, "after consultation with other agencies and the Advisory Committee on Information Policy" to submit to Congress, one year after the enactment of the Act, the result of a feasibility study for the establishment of a "comprehensive inventory and authoritative register of all information dissemination products and services disseminated by the Federal Government." In addition to these items, assessments in *Informing the Nation* (Office of Technology Assessment, 1988), statements by library associations and public advocacy groups, and comments by agency officials suggest that increased attention should be given to a government-wide information inventory/locator system.

Increased Attention to Information Dissemination

Until recently, the dissemination of government information was a secondary goal compared to information control, cost reduction, and the design of inventory/locator systems. However, a new emphasis has been placed on information dissemination by the government. The 1986 Reauthorization of the Paperwork Reduction Act (P.L. 96-511), specifies that information dissemination is part of information resources management activities and falls under the functions of the Director of OMB:

The Director shall develop and implement Federal information policies, principles, standards and guidelines and shall provide direction and oversee the review and approval of information collection requests, the reduction of the paperwork burden, Federal statistical activities, records management activities, privacy and security of records, agency sharing and dissemination of information, (Coordination of Federal Information Policy, 44 U.S.C. 3504).

This legislative requirement appears to have brought some changes in the language of subsequent OMB instruments.

For example, the text of OMB Circular A-3, and the annual issuance of Bulletin 87-14, 88-10, and 89-15, suggest a shift from information management for data control to information management that includes information location and dissemination. Further, OMB Bulletin 89-15 does not try to use a data control system for information dissemination. Indeed, the system is called "information dissemination management system" rather than "publication control system."

Bulletin 89-15 also introduces the idea of a "central collection point" that would compile agencies' inventories into one inventory/locator system. With Bulletin 89-15, OMB attempts to give systematic management attention to carrying out the agency's dissemination function, not just considering publishing as an afterthought. Bulletin 89-15, however, does not address how or if the "government-wide" inventory created by the collection point will be disseminated, or how it will be accessed. Finally, the "Second Advance Notice of Further Policy Development on Dissemination of Information" issued by OMB in 1989 provides additional attention to dissemination issues.

Congress has recently passed legislation establishing, for example, the National Trade Data Bank (15 U.S.C. 4901-4913) and the range and amount of legislation related to information policy in general and the requirements for developing specific systems continues to increase—especially in the last five years. These various initiatives suggest that there is increasing interest in the dissemination of government at OMB, by Congress, within the agencies, and among various user groups.

Ambiguity of Roles Among Key Agencies

Roles and responsibilities for among OMB, GPO, NTIS for the development of a GILS has become increasingly ambiguous in recent years. At the government-wide level, responsibility for the different inventory/locator systems has been shared among numerous agencies, but essentially among GPO, NTIS, and OMB. The proposed legislation confirms them as three key players. OMB is responsible for policy development in overall information resources management as a result of the Paperwork Reduction Act, and both H.R. 3695 and S. 1742 support this role.

In H.R. 3695, agencies are mandated to utilize GPO "for the production and dissemination of information products and services, to the extent provided by chapters 5, 17 and 19 of this title." The American Technology Preeminence Act (H.R. 4329) mandates NTIS to submit a feasibility study of FEDLINE, the Federal Online Information Product Catalog. Thus, the roles and responsibilities of

NTIS, GPO, and OMB, related to inventory/locator systems, continue to be key, but still remain somewhat ambiguous. Once again, policy guidelines could be developed to clarify and define the roles and responsibilities of these key agencies and their relationship to other agencies regarding the management and dissemination of government information.

Increased Agency-Direct Dissemination

Recent legislation provides statutory direction for agencies to disseminate information directly to the public without considering the role of GPO and NTIS. Research with Respect to Acquired Immune Deficiency Syndrome, Information Services (42 U.S.C. 300cc-17) mandates the Department of Health and Human Services to disseminate information on AIDS through the channels that are the most likely to be used by the targeted public:

Through information systems available to individuals infected with the etiologic agent for acquired immune deficiency syndrome, to other members of the public, to health care providers, and to researchers.

The same trend is found in OMB Bulletin 87-14, section 4c:

Agencies shall make such inventories available to the public, either directly or through intermediaries such as other Federal agencies or private sector entities, as an aid in locating government information products and services.

Another example is the recent establishment of the National Trade Data Bank at the Department of Commerce (15 U.S.C. 4901-4913).

Agency-direct marketing of information services/products is also found in the National Library of Medicine. A 1987 amendment mandates the Secretary of the NLM to "publicize the availability of the above products and services of the National Library of Medicine" (42 U.S.C. 286 b). Increased agency direct dissemination may increase the need for a comprehensive "inventory of inventories" of government information.

Electronic Information

In the last few years, greater attention has been given to the dissemination of government information in electronic format. For example, OMB Circular A-3 (issued in 1985) did not cover electronic products, while electronic formats are mentioned in OMB Bulletins 87-14, 88-10, and 89-15. The same trend is found with the Depository Library Program's pilot projects to disseminate government information in CD-ROM, with some recent policy instruments (OMB Bulletin 89-15) and legislative proposals (S. 1742; H.R. 3695) requiring agencies to make their electronic information products available to the DLP.

While this trend could improve the efficiency and effectiveness of information storage and dissemination, there is a concern that public information products and services maintained in electronic format should not be disseminated only electronically. Not all citizens have the necessary skills or equipment to retrieve online information, or have access to a depository library with the necessary equipment, such as microcomputers and CD-ROM players. Such a requirement might widen the gap between the "information-rich" and the "information-poor." Thus, electronic inventory/locator systems should provide a range of dissemination and access formats if use is to be maximized.

Costs for Government Information

This trend is best described by policymakers' efforts to develop alternative methods to share or distribute costs related to the dissemination of information. Attention has also been given to the role of "user fees" (see Laska, 1989) and utilizing "cost-sharing" techniques (H.R. 3849) in the dissemination of government information.

The language in the policy instruments, however, regarding cost recovery for information dissemination has evolved from a requirement to recover costs of information dissemination (OMB Circular A-130) to a call for fees not to exceed the marginal cost of dissemination or even the reduction or waiving of fees when information dissemination enhances the agency mission. OMB's "Second Advance Notice of Further Policy Development on Dissemination of Information" (OMB, 1989b) states quite clearly:

Charging for reproduction and distribution of electronic information products, the usual basis for user charges for these products, is consistent with a cost-of-dissemination policy.

Other instruments take a different approach to the pricing of information products. As for the price of printed publications, 44 U.S.C. 1708 states that items sold by GPO will be based on "the cost as determined by the Public Printer plus 50 percent," while free publications should be distributed at no cost. Items disseminated through NTIS, however, because of NTIS' statutory mandate to be financially self-sufficient, must meet requirements of "full cost recovery." Thus, in these instances, prices are computed by different methods. This attention, however, to costing, user fees, and cost-sharing is likely to continue in the immediate future and may have a significant impact on the development of inventory/locator systems.

Customer Orientation

OMB Circular A-132, "Federal Productivity and Quality Improvement in Service Delivery" (1988) introduces the importance of having a customer orientation as a criterion for improvement and delivery of cost-effective products and services to the public. A "customer oriented" agency should seek, clarify, and satisfy its customers' needs and requirements vis-a-vis a program, a service or a product. A good recent example of this trend is the notice that appeared in the Federal Register requesting comments on the proposed data elements and configuration of the National Trade Data Bank (Department of Commerce, 1990).

While A-132 discusses the importance of surveying users' information needs and requirements before developing an information product or service, or designing an information system (computer-based or otherwise), such activities are not mandated in other information inventory/locator policy instruments. Nevertheless, customer orientation is an important issue and may be making some headway as a criterion for the design of Federal information systems.

There may be a trend evolving in the agency-specific policy instruments to recognize the importance of identifying and meeting user needs in the design of information systems. For example, P.L. 101-239, which creates an Agency for Health Care Policy and Research, includes very specific language on the importance of designing information dissemination systems in light of user information needs. Increased attention to user needs and designing inventory/locator systems to meet those needs will increase the effectiveness of those systems.

Reducing Monopolistic Dissemination of Information

There is increased recognition that it is a governmental function to disseminate information, and that there should be a diversity of sources for information dissemination (Congress, 1986). H.R. 3695 (pp. 4-5) "encourages a diversity of public and private providers for public information products, consistent with the Government's obligation to disseminate public information," and prohibits (unless specifically authorized by a statute), the establishment of any restricted or exclusive distribution channels preventing public access, on a timely, equal, and equitable basis, to public information.

This position is also found in S. 1742, which views the responsibility of sharing information dissemination by public and private sectors as a "sound policy" (p. 18). H.R. 3695 also implicitly authorizes "value-added" features to "raw" government information, by suggesting that information disseminated in electronic formats should be accompanied by the available software, indexes, and documentation. The growing sentiment appears to resist monopolistic control over government information and encourage a range of stakeholders to be actively involved in dissemination activities.

SUMMARY

The review of policy instruments related to inventory/locator systems identified numerous statutes, regulations, and proposed bills that address the topic. A preliminary list of key policy instruments requiring some type of a government information inventory/locator system was compiled and is included in this chapter. Appendix A lists these and other policy instruments that contain some requirements for an inventory/locator system.

The existing statutes and regulations, while numerous, also have some weaknesses regarding:

- How the systems are to be configured
- What specific types of information are to be included in the systems
- System purposes
- How, or if, such systems are to enhance the effectiveness of IRM
- Procedures for how systems should be operated
- The specific clientele groups to which systems are targeted
- Agency responsibilities for ensuring the effective access to and dissemination of information in the systems.

There could be much better coordination and integration across government-wide statutes, agency-specific statutes, and OMB policy guidelines. Moreover, it is likely that agencies feel some frustration in attempting to respond effectively to the various reporting requirements demanded by existing policy instruments.

The analysis suggests that there is policy precedent for establishing a GIILS, but that the existing array of statutes and regulations related to inventory/locator systems requires some coordination, integration, and revision. In short, there is no one common view on what constitutes a government "inventory/locator system." Rather, there are a range of competing views and systems—each with its own policy basis and champions.

CHAPTER 3 FINDINGS FROM INTERVIEWS

From January to May, 1990, the study team conducted or participated in a number of discussions and interviews concerning government information locator systems. As noted in the first chapter of this report, some of these sessions occurred with individuals, others with groups. About 85 individuals participated in this portion of the study, representing Executive agencies, Congress, library associations, public advocacy groups, academia, and information industry and other private sector groups. The purpose of these interviews was to solicit opinions related to government information inventory/locator systems from information policy makers, providers, system managers, and users. Figure 1-2 (see Chapter 1) provides an overview of these participants.

The constituencies participating in the study were not equally represented, nor were the participants randomly selected. The majority of participants represented Executive agencies, including mission (e.g., Federal Trade Commission), central management (e.g., GSA), and information dissemination (e.g., GPO) agencies. This lack of balance is partially the result of the limitations inherent in a six-month study but is justified because these individuals have had the most experience with the design and development of government information inventories and locator systems. These are also the individuals who would be most immediately affected by the decision to move forward with a GIILS. An attempt has been made in this chapter to represent the range of views that were expressed by different constituencies regardless of the actual number of individuals who represented each group.

The findings discussed in this chapter are a useful starting point for gauging the views of the many groups potentially involved in GIILS development. The next step in the design of a GIILS would be to survey potential GIILS designers, managers, and users more comprehensively and methodically. Greater input from the general public and from individual mission agencies would be particularly useful.

There are several strengths to an informal interview and discussion approach to data collection. Face-to-face, relatively informal exchanges provide much richer insight into participants' perceptions, emotions, opinions, and attitudes than do formal interviews or written surveys. These affective factors will have a significant impact on the success of a GIILS. Another strength of this technique is its interactive nature. It allowed individuals to exchange views and experiences not only with the study team, but with their colleagues and other stakeholders as well. Participants were eager to discover more about OMB-OIRA's plans for the development of a GIILS and were also pleased to be asked for their input. This portion of the study generated a great deal of interest in GIILS.

This chapter is organized around the topics covered by the eight questions posed in the Federal Register notice of April 6, 1990 (see Appendix B). The questions provide a useful framework for presenting and discussing interviewees' comments and attitudes, allowing the reader to compare interview comments with the Federal Register responses presented in Chapter 4. The interviews and discussions focused on the analysis of motives, issues, and rationales, and on the collection of background information. Thus, participants' comments dealt less with specific technical elements of information systems or policy, such as record format or dissemination definitions, and more with topics such as desirability and feasibility. Where possible, differences between the opinions and attitudes of various stakeholder groups have been highlighted. The chapter concludes with a discussion of selected key issues related to the interview topics.

The analysis also suggests that many of these inventory/locator systems are unique to individual agencies and that there is no comprehensive government-wide inventory of the inventory/locator systems. Moreover, due to the proliferation of agency-specific inventory/locator systems (broadly defined to include indexes and other finding tools), users are likely to find it increasingly difficult to identify the appropriate inventory/locator to access the needed government information.

The findings from the policy analysis suggest that more comprehensive investigation is needed to identify and assess policy instruments related to inventory/locator systems. Moreover, additional attention and investigation should be given to developing specific proposals to update, coordinate, and clarify instruments related to inventory and locator systems. Such proposals are beyond the scope of this report, but agencies such as the Congressional Research Service or the Office of Technology Assessment could be asked to develop specific recommendations.

Despite the contradictions, limitations, problems, and gaps in the existing policy system for inventory/locator systems, it appears that OMB has sufficient statutory basis (through the Paperwork Reduction Act of 1980 and its 1986 reauthorization) to develop policy and procedures that require agency participation, and request Congressional and Judicial participation, in some form of a GIILS. OMB has exercised its mandate in the development of FILS and the "Listing of Agency Information Dissemination Products and Services." Given the existing policy framework, a GIILS could be developed that would help the Federal government better manage its information resources and would also help users tap into valuable government information resources.

SUMMARY OF PARTICIPANTS' COMMENTS

Question 1: Is it desirable and/or feasible to establish a Federal inventory/locator system for public government information? How might an information inventory/locator system for public government information be defined, and what objectives would the system accomplish?

The majority of respondents believed that an inventory/locator system was desirable. Most individuals believed that some type of mechanism was needed to improve the ability of the government to use, manage, and disseminate its information resources. Typical comments include:

- "Something" is definitely needed to improve access to government information and improve the management of information resources (Congress, GAO, and Federal Paperwork Commission member).
- A general resource that would allow intermediaries to scan available knowledge and have access to multiple databases would be very useful (Federal Publishers Council [FPC] and Federal Information Resources Managers Policy Council [FIRMPC]).
- Our decentralized government demands a locator system, but works against it (OMB and FIRMPC).
- There is an obvious need for an inventory/locator system, but it should be kept simple (Private sector).

Nonetheless, a few individuals from most stakeholder groups expressed some doubts about the degree of need for a GIILS. The most common concern involved the difficulties of assessing demand for a government-wide information inventory/locator system. Some respondents rather aggressively questioned the assumption that the degree of the demand for such a system could possibly justify its considerable costs. These respondents presumed that not many people (whether government workers or the public) needed government information and that those who want government information already know how to gain access to it.

Others addressed the issue of demand with a quite different set of assumptions, putting an emphasis on the need to accurately assess and target user information needs if a system is to be successful. They emphasized the obvious need for government information, cited examples of members of both the government and the public being underserved by public and private providers of government information, asserted that many government information products and services are underutilized and unknown, and stressed that any inventory/locator system must know its markets and audiences in order to serve them well. This second, more positive, attitude toward the importance of assessing demand was much more commonly expressed by all stakeholder groups, including Executive branch officials and private sector information providers.

The following comments represent the range of views expressed by participants about the need to demonstrate the demand for a GIILS before forging ahead with its design and implementation:

- The question of demand is a major point of contention. Considerable investment requires proof of demand first (OMB).

- What will the inventory accomplish? Has it been empirically proven that people can't get the information they need (FIRMPC)?
- Many ventures fail because of an overestimation of demand, but some information should be disseminated simply because it's the right thing to do, it's part of agency mission, it's useful (Congress).
- There is clearly duplication and gaps in the provision of government information, but any inventory system must be preceded by a clear definition of purpose and clear evidence of demand (Bauman Foundation).

The issue of demand is, as one respondent put it, a "chicken or egg problem." In other words, no information product or service can substantiate its demand and audience until, in fact, it is available, disseminated, and used. A number of participants emphasized that, often, no demonstrable market exists until the product or service is available and audiences begin to use it. Even then, the information product undergoes considerable change as audiences discover new uses for it. Spokespersons from the private sector corroborated this idea: one stated that spending 40% of the budget for marketing and waiting 12 months or more to establish a reliable market for any information product or service is normal.

Most respondents felt that a GIILS was feasible as well as desirable:

- GIILS is possible, but the logistics of operation and deciding which organization should have primary responsibility for the system will be very difficult (GAO).
- Such a system is feasible if it is small, incremental, and carefully planned (OMB, GAO, FPC, FIRMPC, and Congress).

While some respondents expressed doubts about a GIILS's feasibility because of civil liberties, cost, indexing, and policy questions, the major argument against the feasibility of a GIILS was based on the perceived lack of agency incentives. Lack of sufficient financial resources, staff, and explicit rewards were especially noted. All respondent groups emphasized that agencies must be committed to a GIILS and/or that participation must be enforced for a GIILS to be successful. Agency representatives, including program managers, IRM policy makers, and publishers, all expressed similar doubts about the existence of agency incentives:

- What is the agency's "payoff" [in a phrase used repeatedly by all stakeholder groups] for agency cooperation with GIILS? The burden of compliance with dissemination and other IRM initiatives outweighs any potential, nebulous benefits that we might see.
- Why should we "give up" our information products and services when we already know our clients' needs and methods of information seeking and have expended considerable resources in the development of systems to satisfy our clients' needs?
- Is full information management, including proactive dissemination, required by our mission and affordable? Will the resources to disseminate, if it is required, be forthcoming?
- How do we know that successful dissemination programs will not be reviewed under A-76, and then awarded to the private sector?

One respondent noted that agency participation exemplified a "Catch-22" situation: the system would not be useful (i.e., would not succeed) unless agencies contributed, but agencies would not contribute unless the system were proven useful.

Some of the agency staff interviewed doubted the value of a GILS for their own internal management of information resources. Although they often had no complete inventories of their own information products and services, they were not eager to generate such a list for internal IRM, much less for dissemination. A fear was expressed that such an inventory would generate more FOIA requests than the agencies have resources with which to respond.

Some interviewees, most commonly those directly involved in dissemination, did offer several suggestions for demonstrating the value of internal inventories, and a GILS based on those inventories, to agencies. Such reasons for agency cooperation in developing a GILS included:

- Additional exposure of agency information products and services to a wider audience
- Reduction of time spent answering inappropriate questions and providing reference to other agencies or arms of government
- Enhanced dissemination and distribution resulting from a common "inventory of inventories"
- Release from some of the financial burden of internal audit and review of information activities.

Most of the participants expressed their belief that dissemination must be much more actively supported financially and philosophically by both OMB and the Congress. Otherwise, the interviewees noted, agencies will cooperate to the minimum extent possible with each other and with any government-wide information system.

Another major problem related to the feasibility of a GILS, mentioned by many respondents, is that the Federal government has yet to demonstrate its ability to successfully design, implement, and market large-scale information systems. This opinion was expressed by all major stakeholder groups. Such fears were also cited as a major reason for respondents' insistence on the need for full and proactive involvement of the private sector in any GILS.

Participants in the study described a number of objectives for any GILS, although many noted that the first phase of GILS development should be to define clearly the objectives of the system. Several respondents noted that the system should improve both IRM and the dissemination of information to the public (OMB, Congress, Bauman Foundation, GPO, and a Federal Paperwork Commission member). Other common responses were that the system should improve information flows and processes in government, make the existing diversity easier to penetrate, target specific user groups, help agency disseminators do their jobs and market their products and services more effectively, save agencies money, and remain free from political influence.

Question 2: How might an inventory/locator system for public government information be configured? What data should such a system include: information collection requests, information products and services, databases, information sources, or some combination of the above? How might the system best be administered?

Virtually all of the participants in the study strongly recommended that GIILS be kept simple and that it should be developed incrementally. The study team was repeatedly cautioned against the folly of trying to implement a huge, comprehensive, centralized repository for all government information that would fulfill the needs of all users. Such a system was viewed as being politically and operationally impossible, outrageously expensive, inappropriate to our national ethos, and, perhaps most importantly, useless because it would not encourage users to interact with information providers or experts directly.

Interviewees at one agency, although reluctant to describe a specific model for a GIILS, noted a useful set of system criteria. They noted that a GIILS should:

- Be simple
- Be cheap
- Answer questions and provide information
- Tap into existing information flows
- Include human intermediaries.

Some respondents recommended that the system should first include only that information which was most "important" or most "needed." Others emphasized that records in the system should not represent individual publications, databases, etc., but only catalogs or directories. Most respondents firmly believed that agencies must retain ultimate responsibility for organizing, describing, and providing access to their information.

The overwhelming consensus was that a GIILS should be an inventory or pointer system, e.g., a system that directs users to significant indexes and catalogs, directories, and other key finding tools. The pointer system described by the respondents is based on the desire to retain agency level control of information resources; to keep the system as simple as possible; to take full advantage of existing agency information systems, expertise, and audiences; to minimize cost; and to maximize agency commitment to the GIILS. The respondents said that a GIILS:

- Should be a general, pointer system
- Must be a directory of directories
- Should provide "an index to indexes"
- Should be a "central place where clearinghouses could send their catalogs"
- Should be a distributed, pointer system.

A clear majority of study participants argued that a GIILS, designed as a pointer system, must be based on agencies' inventories of their own information resources. Respondents believed that each agency and other government offices should complete a comprehensive inventory of its information products and services, and then submit that to a centralized office which would generate an "inventory of inventories." Some respondents suggested that those agencies who already have good track records with IRM and public dissemination should take the lead to demonstrate the internal benefits of such an inventory; to provide examples of steps to be followed, resources to be included, and formats for records; and to be general exemplars for others to follow. Such agencies would need support from both OMB and the Congress to serve in this role.

Most interviewees emphasized that a GIILS needs a long-range plan, to be developed in conjunction with all the major stakeholder groups. Interviewees suggested that a GIILS should start small, perhaps with the exemplar agencies noted above, and then grow slowly and incrementally over a period of 2-5 years. A full-fledged pilot project involving several agencies was also suggested as a method to demonstrate such a system's usefulness, practicality, and value. The respondents noted that one major reason for an incremental and evolutionary system is to garner agency support for the approach taken and to assure agency commitment to its success.

Most participants thought that a GIILS should not have entries that described specific information items; rather it should have a listing of governmental inventories or other key finding tools. Such a system, as noted by the majority of interviewees, must have mechanisms to enforce standards and to ensure regular and appropriate compliance from all contributing agencies. There were suggestions that this inventory of inventories should have abstracts describing the entries to guide users more successfully to the agency inventories that most likely contain the information needed.

A few respondents believed that the GIILS should be a gateway to the information resources themselves. Some suggested an evolution from a simple inventory of inventories to a full-text mega-database. One respondent also suggested that advocating a single GIILS is like the pursuit of the Holy Grail — one system cannot satisfy the needs and match the skills of widely disparate audiences.

Many of the respondents, from various stakeholder groups, emphasized the need for agency-based, expert intermediaries to help users once the GIILS referred them to a particular information source. It was suggested that such intermediaries should have:

- Adequate training in their own agencies' resources, in using the GIILS, and in helping others (either in government service or outside it) use GIILS
- Access to multiple information systems, both within their agencies and elsewhere
- Professional reference skills.

Participants felt that, like all aspects of the GIILS, the training of intermediaries should be supported, in terms of oversight and commitment, by Congress and OMB.

One major caveat about a GIILS, expressed by one respondent, is that a locator system implies some guarantee about the reliability and validity of the information contained in the agencies' inventories. This was seen as a particular threat to users and generators of statistical information. In addition, statistical inventories listed in GIILS, according to this interviewee, need material that gives adequate explanatory and evaluative comments about data collection techniques, analytic methodologies, and similar topics.

Question 3: Would it be desirable to standardize information elements in inventory/locator systems maintained by Federal agencies so that agency systems could be collected into a government-wide inventory?

Standards for GIILS, by consensus, were seen as essential by all stakeholder groups. It was generally held that standards should be developed for the following GIILS characteristics:

- Reporting schedules
- Record format(s) and data elements
- Operating systems environment(s)

- Hardware
- Indexing and abstracting procedures, including controlled vocabularies
- Application programs.

The majority of interviewees, including some agency staff, noted that agencies should have to report their inventories in a standard record format, but they should still have the option to generate and store information in other formats for their own internal use and for outside users.

Respondents also noted that existing program and indexing agencies, e.g., NIST, NTIS, GPO, must participate in the development of any standards. There was considerable support for building on present systems, particularly from oversight agencies, mission agencies, and the library community, so that agency investment in these systems would not be dismissed. It was widely agreed that one of the major roles that OMB can play in the development of Federal information dissemination policy, in general, and in the development of a GIILS, in particular, is to contribute to the development of standards. One of the benefits of a common format, frequently cited by respondents, would be the ability to transcend agency-specific standards and protocols.

Question 4: What government information inventory/locator systems exist currently? How might they be improved to best meet the needs of both the government and the public?

There were three inventory systems that were noted several times in the interviews as being of special use as "good examples of good examples" for the development of a GIILS. These systems are also examined in Chapter 5:

- The Federal Information Sources and Systems, produced by the General Accounting Office until it stopped publication in 1984, was noted by several stakeholder groups as a possible model for a GIILS. It was comprehensive, well-indexed, accessible, and easy to use. Although it was universally thought of as exemplary, the study team was told that it was stopped because of GAO's reluctance to commit the resources needed to produce it.
- The Information Resources Directory produced by the Environmental Protection Agency (1989) was also suggested as a good model. This source is also comprehensive, thoroughly cross-referenced, and indexed, and it was produced by an outside consultant. It was especially well-received because of the broad range of "information resources" contained in the book. Those respondents who knew of it recommended it highly, while those who were unfamiliar with it, after examination, also expressed strong approval.
- The Federal Information Centers (FICs) overseen by the General Services Administration were mentioned in several groups as another useful model, even though few respondents knew much about the success of this operation. These centers, which provide telephone reference service to selected metropolitan regions in the country, were recently contracted out to Biospherics, Inc., after an A-76 review. The purpose of the FICs is to answer the public's questions, disseminate government information, and refer users to other sources of information.

Respondents also were familiar with the Monthly Catalog of U.S. Government Publications and the NTIS database. Although some agency-specific information systems were mentioned, the respondents did not believe that these systems would be effective at a government-wide level. There also was general agreement that the existing FILS was not a good example for a GIILS.

Question 5: To what degree should an inventory/locator system be considered as part of, or linked to, Federal information resources management?

Most respondents directly involved in or concerned with government-wide IRM policy development said that any government-wide information inventory/locator system should be tied explicitly to IRM:

- The primary focus for GILS should be as a management tool Our bills are trying to highlight IRM and also to broaden it (Congress).
- We need more attention to IRM. We need to develop the concept of, and be more concerned with, "net benefit" (OMB).
- FILS and Federal IRM in general have been cast in a purely negative context, i.e., cost control and oversight. We need to look at value-burden relationships and "net benefit" in the design of an inventory. There is a growing maturity in government about the importance of information management, the responsibility of the government to disseminate information, and the incorporation of "real" IRM principles and practices into government operations. It is time for a visionary approach to a government-wide inventory, one that can take advantage of this maturity (Federal Paperwork Commission member).
- An inventory is a critical part of the IRM process. It is the first step, a critical step that must be accomplished (Bauman Foundation).

Some of the agency information resources managers who participated in the study, however, saw little connection between IRM and either an inventory or dissemination. One agency group succinctly expressed agencies' reluctance about a GILS and more proactive dissemination:

What would an inventory accomplish? I don't understand the goals. The real problem is to prove that more and better information helps people – both the public and Federal employees – do their jobs better.... There is no reward for dissemination ... there is a huge policy vacuum.... Dissemination and inventories just don't seem to be a priority for Congress or OMB A law may come out saying we have to do this, but it can't be done right (FIRMPC).

Other study respondents commented on the need for information resources managers to broaden their views of IRM:

- Agencies are not aware of their own or other agencies' information resources. They don't yet buy the notion of management improvements from having better access to their own information. They are still driven by the questions: Can we afford it? Is it required by our mission? Who's benefitting? (Congress).
- Agencies need to go from a "burden" to a "benefit" mentality. IRM has been delegated down to a GS-10 level. There is no stick to make agencies give IRM the attention that we and Congress want to see (OMB).
- Even though it would help them manage their information resources better, agency IRMers would look at a GILS as one more hassle; they would not see the benefits (GPO).
- I don't think that other agencies take the Paperwork Reduction Act and its reauthorization seriously An OMB circular would get agencies' attention that this is important and that they had better participate (Mission Agency).

- Federal librarians are the ones with a handle on what information resources are available, not IRM folks (Federal Publishers Committee and Bauman Foundation).

Claims of the benefits as a result of agency-level inventories used to support IRM were not generally accepted by the agencies, according to the non-IRM interviewees. While one OMB staff member stressed that the primary focus of any GILS should be as a management tool for agencies, many agency IRM staff seemed to be unconvinced and expressed a diametrically opposed view.

Question 6: How well do existing statutes and regulations provide guidance and direction to Federal agencies in maintaining inventory/locator systems? What specific statutes and regulations provide such guidance? Should steps be taken to revise these statutes and regulations?

Participants referred to some of the statutory and regulatory requirements for inventories of government information noted in Chapter 2. Most, however, had little familiarity with existing information policies. Oversight and mission agencies, especially, found the net of Federal policy instruments related to inventory/locator systems cumbersome and confusing. Our interviews revealed several areas of uncertainty about inventories in the Federal government. Agency staff were uncertain about what they are obligated to do, to whom they must report, and for whom the inventories they generate were intended.

Other Federal officials, including those at NTIS and GPO, were uncertain about the relationship of their mandates to additional Federal mandates for inventories of government information. They also noted the overall lack of compliance of agencies with GPO and NTIS dissemination requirements because of agency lack of resources, ignorance, or inertia.

Oversight agencies, including OMB, GSA, and GAO, stated that they were uncertain of the specifics of the universe of Federal policy instruments with regard to inventory systems and of their own responsibility for enforcement and program evaluation. According to the respondents, the Congress is also uncertain about what inventory laws and regulations exist, how these laws and regulations interact, and how to resolve inherent conflicts and gaps in them.

There was virtually universal agreement among OMB and Congressional staff members that OMB and Congress have been reluctant to enforce the present FILS and other inventory requirements and have provided insufficient enforcement for all governmental dissemination and inventory initiatives. Mission agencies (including program and information management staff), central publication and distribution agencies, and public advocacy groups emphasized that OMB and Congress have failed to provide adequate policy guidance, sufficient funding, and sufficient rationales to agencies to improve dissemination activities. For example, they noted that GPO and NTIS often have difficulty getting agencies to comply with present rules and regulations, and any GILS, therefore, must have, as they put it, a "stick." Many respondents in the mission agencies believe that, while OMB has sufficient authority to enforce existing dissemination language, OIRA may have insufficient resources and an insufficient number of competent people to ensure successful dissemination by agencies.

Some respondents, including the Congressional staffers interviewed, asserted that present statutes already have sufficient language on indexes and location tools to guide agencies and to ensure compliance with the principle of active dissemination. Yet by their own admission, however, the same respondents note that present and suggested statutes offer only vague encouragement for dissemination, with no oversight or enforcement. Like OMB, the Federal Publishers Committee, and the Federal Information Resources Managers Policy Council, the Congressional staffers criticized others for not doing an adequate job with information policy, especially dissemination.

Overall, interviewees expected that the legislative initiatives to reauthorize the Paperwork Reduction Act (H.R. 3695 and S. 1017) would help provide a better statutory basis for the development of inventory/locator systems. However, they also believed that the statutes, alone, would be inadequate for improving dissemination activities. Specific policy guidance from OMB on dissemination would be necessary and would be welcome, at least by a number of the agencies.

Question 7: What are appropriate roles and relationships for OMB, other Federal agencies, the private sector, the library and information science community, and other groups in the development, design, and operation of an information inventory/locator system for public government information?

The consensus among the interviewees, with the exceptions discussed in question 1 above, was that a GIILS is desirable and feasible. The respondents felt that a GIILS must result from the cooperative action of individuals in the Executive and Legislative branches. For example, they said that such a system should be based on specific Congressional actions, including reaffirmations of existing dissemination language and principles; new legislative support for dissemination programs; and increased appropriations for dissemination and for enforcement of dissemination requirements by the Executive branch. Several respondents noted that Congress must follow the recommendations in Informing the Nation – delineate Federal information policy, especially with regard to dissemination and electronic communication media, and commit resources to realize the policy.

The interviewees also had clear ideas about the role that OMB-OIRA should play in the development of Federal information policy, generally, and information dissemination and a GIILS, specifically. There was wide agreement that OMB should provide policy leadership in dissemination through its interpretations of existing statutes and regulations, of new legislative mandates, and of its own requirements for information inventories and dissemination. It was generally agreed that OIRA could write regulations to link information collection with dissemination, with an emphasis on encouraging agencies to:

- Cooperate with each other
- Cooperate with indexing agencies
- Develop standards, perhaps in cooperation with GPO, NTIS, and NIST.

These actions were particularly important to oversight agencies, mission agencies, the library community, and the private sector.

According to most of the interviewees, OMB-OIRA itself should help set guidelines and standards, including standards on how to measure demand for information products and services and how to evaluate dissemination mechanisms. The respondents noted that this development, however, should be done only in conjunction with agencies who actually provide the information products and services and only in the context of a general commitment to dissemination as an essential part of Federal IRM. In addition, most respondents said that OMB must take an aggressive stance on compliance. All stakeholder groups agreed that agencies themselves must provide some impetus for a GIILS.

A second major area of consensus regarding appropriate roles of the various stakeholder groups in a GIILS was the role of the private sector. This role should be based on some fundamental assumptions expressed during the interviews by the major stakeholder groups:

- Collection, generation, and storage of information are essential to government operation, and the private sector can make significant contributions in these areas. Dissemination is also seen as essential to governmental function, but the private sector plays an especially vital role in supplementing and complementing governmental dissemination activity. Such cooperation should continue, and the private sector should be as active as possible in providing additional information services. This private sector role should rely on value-added functions and the identification and filling of specific market niches. There must be a fluid working partnership between public and private providers of Federal information.
- The government must be as effective and efficient as possible in the provision and management of its information services and products.
- The Federal government must provide oversight not only to its own information activities, but also to those of the private sector, to ensure that the goals of Federal information dissemination policy are being met.
- It is essential to maintain the existing diversity of sources of Federal information, but the "system" should be made much easier to penetrate and navigate -- here the private sector can play an important role in supplementing public information providers.
- Private sector firms must have a good relationship with the government agencies if the provision of the agencies information services is to be effective.
- A basic "meat and potatoes" inventory of inventories should be provided by the government, with the private sector having access to it, perhaps under appropriate licensing agreements, in order to provide supplementary products and services. The idea of a "meat and potatoes" inventory of inventories as the model for a GIILS was especially appealing to the private sector interviewees.
- Sophisticated graphics and complex interactive capabilities, especially important to users of statistical information, are beyond the budget and expertise of most public providers of Federal information; therefore, such functions may be best offered by the private sector.
- The government cannot provide the complete follow-up and user support, especially timely customer service, that the private sector provides.
- While a GIILS would obviate the need for some existing private information products and services, many others would survive, and many more would develop. This was taken as a fact of life, as a working assumption, for all private sector information activity, no matter what governmental action is taken in any particular circumstances.

Some interviewees noted that the Office of Science and Technology Policy (OSTP) in the Executive Office of the President might well be a major player in the design and implementation of a GIILS. OSTP, however, while agreeing that something must be done about the dissemination of government information, maintained that it is not in the position to provide leadership or significant input to any GIILS-like system. Such reluctance is based on the Office's need to devote its attention to other priorities, lack of staff, lack of clear consensus on what should be done about information activities, limited internal expertise about information, and resources in general.

There were also suggestions that any GIILS should be based at GPO or NTIS or at both agencies. At GPO, support for GIILS exists at the policy level, but the operational level lacks resources for such a task. GPO representatives noted that they need clear indications of Congressional support and resources for them to play any significant role in a GIILS. GPO would also require clear indications that OMB would enforce reporting and dissemination obligations better than it supports GPO's mission under the present 44 U.S.C. Despite these shortcomings, GPO says that it is geared up and already in the business of providing access to government-wide information. Thus, GPO says that, with adequate additional resources and enforcement, it can design and operate a GIILS.

NTIS also felt that it could play a major role as the central agency in the creation of a GIILS, but primarily with regard to scientific and technical information (STI). As noted in Chapter 2, the American Technology Preeminence Act (H.R. 4329) has provisions to make NTIS the major and centralized source for all Federal STI, and NTIS has prepared a draft for an Executive Order that details how this should occur. It is unclear, however, if NTIS is willing or able to act as the central agency for all government information that a GIILS might require. One major policy question results from NTIS's historical reliance on licensing agreements with the private sector as the major means of disseminating the information under its control. There is much agreement among the interviewees that primary reliance on such an arrangement would not be appropriate for a GIILS.

A number of respondents offered suggestions about which agencies should take the lead in developing, implementing, and operating a GIILS. In addition to NTIS and GPO, others mentioned frequently were GAO, GSA, OMB, and "a new agency." Most respondents also identified specific reasons why none of these options was likely to be successful. Overall, however, few interviewees recommended potential players unknown or unconsidered by the study team and its OMB liaisons. One interviewee did note that the National Referral Center at the Library of Congress should be included as a potential player in a GIILS. Another suggestion offered was the establishment of an interagency task force to develop standards and to determine what inventories already exist, and then build on them. This respondent insisted that the government should not build any system from scratch and that only further study, focused research, and cooperative action could realize the goals of a GIILS.

Throughout the discussion of roles, interviewees regularly mentioned the importance of intermediaries in the success of a GIILS. They noted that the library community and, more specifically, the Depository Library Program (DLP), were important participants in "translating" government information resources to meet user information needs. Further, some respondents noted that the library community had experience in this area and should be actively involved in the development of such a system. In short, respondents recognized the importance of the DLP role and believed that it could be enhanced with a GIILS.

Question 8: How can OMB encourage Federal agencies to maintain better government information inventory/locator systems as part of: (1) agencies' information resources management activities and (2) to improve access to public government information?

All stakeholder groups thought that OMB, in concert with the Congress, must provide the basis for Federal information dissemination and agency inventory policy. OMB's other major responsibilities were identified as enforcement of dissemination statutes and regulations, and budgetary support of agency information dissemination activities. Interviewees from oversight agencies, the library community, public interest groups, and the private sector noted that the recalcitrance of agencies with regard to inventories might be reduced if OMB were to provide consistent and specific policy guidance connecting dissemination to information collection, paperwork reduction, and IRM in general. All respondents, except for mission agency staff, emphasized that it is necessary to achieve the integration of dissemination and agency inventories into agencies' understanding and practice of IRM. Several respondents also noted that it is particularly important for the management and budgetary sides of OMB to work together to ensure that IRM directives from the management side would, in fact, be supported by the budget side.

Agency spokespersons specifically mentioned the following suggestions for how OMB could encourage agencies to maintain better inventory/locator systems as part of IRM activities:

- Demonstrate the costs and benefits of an inventory/locator system
- Provide detailed policy and procedural guidelines for where and how to link inventory/locator systems to IRM
- Promote, or require, training programs to ensure that agency IRMers are up-to-date with new developments in management, information systems development, and market research
- Better coordinate the "management" with the "budget" side of OMB so that policy requirements from the management side are also supported by the budget side
- Identify one or two IRM programs that use an inventory/locator system and promote those programs to demonstrate how an inventory assists in the management of information resources
- Show how an inventory/locator system can identify duplication among information resources, provide better access to information resources, and save the agency money
- Encourage or require IRMers, program officers, and "library types" to work together on an inventory.

Some interviewees felt very strongly about the importance of linking IRM with inventory/locator systems, and others, felt equally that such links could not be made, or were unnecessary.

In terms of OMB's role in improving access to public information, there was consensus that policy steps taken by OMB to develop some form of a government-wide information inventory/locator system would be a "good thing" given the caveats previously identified in this chapter. Generally, there was recognition that OMB may have "softened" its policy stance toward cost-reduction and efficiency concerns to take a more balanced view of the importance of improving dissemination of public information. A number of interviewees were most interested and willing to work with OMB toward the objective of developing some form of a GIILS to improve access to public information.

KEY ISSUES

The responses and comments from the interviewees provided a range of opinions and views on what should be done regarding a GIILS. In reviewing these comments, the study team noted a number of key topics or issues that seemed to be discussed in many of the sessions. Because of their overall importance for the development of a GIILS, they are briefly discussed here.

Demonstration of Demand

Regarding the question of demand, it seems clear that better means of assessing demand, targeting specific market segments, identifying and describing user groups for specific types of information resources, and evaluating the degree to which a GIILS is fulfilling demand are certainly needed. On the other hand, the growth of the online industry provides a clear example of the necessity for some investment even before demand is "proven." For example, government investment in the NASA Recon project extended to millions of dollars and several years. Only after the hardware, software, telecommunication protocols and connections, record formats, and other variables had been determined did the private sector step in and use the government-funded project as the basis of its own efforts. The results have been remarkable and one of the major success stories of the information business.

A fundamental problem with the issue of demand and need is the lack of good metrics to measure the true costs and benefits of information products and services, especially those provided by the public sector. Any argument for or against a GIILS that is based on empirical demonstrations of costs and benefits is somewhat specious — we simply do not currently have adequate measures of either costs or benefits associated with information use. This is especially true in a political context: e.g., how does one measure the value of public education and enlightened participation in the political process? How does one measure the true cost of not having such participation? No stakeholder group could offer any guidance for resolving the lack of adequate metrics for information costs and benefits. The field of information studies, in which the economics of information is still a young and neglected subdiscipline, also offers little guidance.

Fear of a GIILS

The negative reaction to the idea of a GIILS by some agency IRM officials may be based on several factors: turf protection, real concern about the possible loss of agency-based subject expertise and audience familiarity, lack of resources and incentives, technophobia, fear of accountability for dissemination, lack of understanding of the "inventory of inventories" idea, and other factors. These fears must be recognized and resolved before any GIILS can be successfully implemented and maintained.

Lack of Specific Policy Guidance on Dissemination

As noted earlier, dissemination and, to some extent, archiving, have been the "orphans" of the information life cycle essential to IRM. The increased interest in dissemination and the increased emphasis on its importance to the completion of agency mission is an indication that the atmosphere is changing. Because of budgetary limitations and other factors, agencies have been encouraged to limit their concern to performance of agency mission as defined by a "strict constructionist" reading of statutes and regulations. Larger concerns of the public good or the formation of a generally informed citizenry are difficult to link specifically with this narrow interpretation of agency mission. This difficulty underlies some of the problems with encouraging agencies to develop more proactive programs of information dissemination. Some agencies, of course, are highly active and successful disseminators and benefit from proactive information resources managers, but they are the exception — by the admission of mission and oversight agencies — rather than the rule.

While some recent policy instruments offer more encouragement for dissemination, agencies lamented their inability to disseminate their information efficiently and effectively. The lack of specific guidance on how to choose, implement, manage, and evaluate various dissemination mechanisms, on how to measure costs and benefits, decide on appropriate pricing techniques, etc., leads to agency confusion and inertia.

Technophobia

"Technophobia" was demonstrated by several individuals in a number of the stakeholder groups. Technophobia is the absolute belief that technology alone can solve all information system problems and that technical personnel should be the ultimate arbiters of information system design and evaluation. Both technologically naive and technologically sophisticated respondents hold this view. Symptoms of this belief included:

- Naivete about the power of indexing and the use of controlled vocabularies as they would apply to a GILS. Such activities were considered magical solutions to almost any information retrieval problem, and they were believed to be fundamentally simple, requiring only technical, not social or user-oriented, solutions.
- Belief in the desirability and feasibility of massive databases offering the full text of all information products of the Federal government. Major problems related to such massive databases include information overload; storage, software, and hardware costs; problems related to indexing and controlled vocabularies; and other difficulties associated with information retrieval (e.g., inadequate precision and recall). These and other problems were either not mentioned or dismissed as inconsequential when they were mentioned.

Technophilia is also expressed as the belief in the ease with which the costs and benefits of information systems can be determined. Such attitudes were explicitly or implicitly held by a number of the respondents in the study. It was information industry spokespersons who typically did not subscribe to technophilia and had a much more realistic understanding of the limits of information technology.

Conflicting Interpretations of IRM

Some agency representatives seemed unconvinced of the importance of establishing inventories of information products and services. Some IRM officers seemed unaware that dissemination to the public fell within their purview and saw little connection between an inventory and either their ability to manage their agency's information resources or the effectiveness of their agency in general. This is a major obstacle that must be addressed if a GILS is to be successfully developed and implemented.

Two questions arise:

1. Is agency insistence on payoff from participation in a GILS a "what's in it for me" attitude, a desire for some type of a *quid pro quo* should the agency participate, the result of simple inertia, or is it related to a lack of resources and confusion over statutory and regulatory requirements?
2. Can this attitude be overcome so that the people responsible for implementing IRM will support a broader vision of IRM, one that includes an attempt to maximize the benefits of information through promoting access and dissemination to both government employees and the public?

As noted by several respondents, OMB, GSA, and GAO may have a struggle ahead of them if they wish to convince agencies, through regulation as well as rhetoric and training, to commit themselves to inventories and dissemination as they have committed themselves to other aspects of Federal IRM.

Thus, an essential part of OMB's role will be to expand agency personnel's understanding and practice of IRM to include dissemination and response to public and governmental needs for useful information services and products. To accomplish such activities effectively, agencies will need to better understand what the "payoff" will be for them to participate in a GILS.

Policy Enforcement

Most respondents criticized both OMB and Congress for failing to provide adequate oversight and control for dissemination policies. The study team recognizes that it is extremely difficult to ensure compliance with proactive dissemination regulations, and OMB itself has said that it is easier to ensure compliance with paperwork and budgetary reductions than with requirements for more active dissemination activities. OMB's relative difficulty in enforcing agency compliance with dissemination guidelines is partially attributable to the dislocation between the budgetary and management arms of OMB and to the failure of both Congress and OMB to allocate adequate resources to enforcement. Thus, it is increasingly difficult to foster an integrated picture of IRM which includes dissemination and archiving.

Need for OMB Leadership

As noted above, many study participants seemed eager for OMB to take a leadership role regarding information inventories and dissemination. Some agency spokespersons noted that it was difficult for them to pursue any course of action in the face of so many vague and conflicting policies and without the infusion of more technical expertise. They felt a tremendous lack of top-down commitment to IRM and public dissemination. Some felt completely incapable of implementing or participating in an inventory without a great deal more education and training in a number of areas.

These same individuals often seemed to have competing ideas about how to interpret policy requirements, assess the needs of their clients, choose and set up the needed information technology, provide adequate indexing and control of inventory records, measure costs and benefits, assign prices to or market their information products and services, evaluate the success of their IRM and dissemination efforts, or convince agency heads that any of this was important. In short, there is a tremendous need for more specific policies, for explanation of policies to those who must implement them, and for more "how-to" training for agency staff.

Ongoing Involvement of All Stakeholder Groups

This study actively solicited the involvement of groups who might have a stake in the design, development, and management of a GIILS. This increased the study team's awareness of critical issues, broadened the pool of expertise devoted to analyzing the desirability and feasibility of a GIILS, and generated a great deal of interest in pursuing a GIILS. Some movement was made toward consensus on system objectives and configuration. The study team believes that the continued involvement of all stakeholder groups in the design and development of a GIILS and related policy would be both possible and exceedingly valuable.

Importance of Additional Research

The interviews and discussion sessions suggest that additional research must accompany any other "next steps" in the development of a GIILS. The design of a GIILS would benefit greatly from a clearer picture of both the degree and nature of government and public users' demand for government information. A high-level description of existing information flows within the Federal government and from the government to the public would avoid the "reinventing the wheel" syndrome and would allow the design of a GIILS to take advantage of existing procedures where they are working well.

More attention could be devoted to an analysis of agency incentives for GIILS participation. A concerted effort to design relevant education and training mechanisms related to a GIILS would also be extremely useful. Other suggestions for additional research are presented in Chapter 5 of this report.

SUMMARY

This chapter has briefly described the interview/discussion approach used to gather information from various stakeholder groups who are concerned with or knowledgeable about government-wide information inventory/locator systems. A summary of findings from the interviews and discussion groups was presented, and key issues arising from this portion of the study were discussed.

A key theme was the extent of demand for government information. Individuals within the various groups held competing views. Some agency spokespersons stated bluntly that people who wanted information from that particular agency would know of its existence and how to obtain it. Such viewpoints were often challenged by others as naive and self-serving. Yet, at the same time, individuals from agencies were concerned about their inability to measure or increase the demand for their information products and services. They were especially concerned that, because they could not measure demand as a means of justifying the importance or use of certain information services or products, it would be extremely difficult to justify information system expenditures to agency management or oversight agencies.

A second theme that seemed to permeate discussions was the need to establish incentives for agency participation in a GIILS. Agencies have yet to be completely convinced that (1) dissemination of information to the public is high priority in the Federal government, and (2) the establishment of agency-specific or government-wide information inventories would provide a useful management tool. On a more day-to-day level, they require more evidence, or at least explanation, of how the development and upkeep of a GIILS would produce more benefits than burdens for them and their agencies.

Another theme that cut across the interviews was the lack of agreement regarding the nature and purpose of IRM, the way in which IRM should be operationalized, and the degree to which it was related to inventory/locator systems. Indeed, it was the IRM officials who were less likely to be interested in inventorying agency information resources. As one might expect, the program officers, public advocacy groups, and the library community were most interested in improving access to and dissemination of government information.

Overall, the various interviewees identified similar issues and topics regarding a GIILS. During the group interviews, the discussions often served as a means of consensus building as people debated key issues. Indeed, the overall opinion expressed in these interviews was that some type of a GIILS was needed and feasible, that the system should be kept as simple as possible, that agency officials would support its development if benefits to the agency could be clearly identified and reasonably assured, that OMB should take a leadership stance in policy areas affecting such a system, and that agency personnel felt the need for more education and training before they would feel competent to participate in a GIILS. Moreover, the findings from the interviews generally supported findings from the responses to the Federal Register notice, which are summarized in the next chapter.

CHAPTER 4

SUMMARY OF COMMENTS TO THE FEDERAL REGISTER NOTICE

A notice in the April 6, 1990 issue of the Federal Register (Vol. 55, pages 1273-1274) solicited comments on this study. The notice contained a description of the study and posed eight questions relevant to issues concerning government-wide information inventory/locator systems. A copy of the notice appears in Appendix B. Although comments were to have been submitted by May 21, 1990, the study team accepted comments through June 15, 1990. At that time, 40 comments had been received and are summarized in this chapter. Appendix C provides a complete list of all respondents. The actual responses are available for review at the Reading Room, Office of Management and Budget, Office of Information and Regulatory Affairs (202-395-6880), New Executive Office Building, Washington, D.C., 20503.

There are a number of benefits in soliciting public comments as a form of data collection. One strength is that the solicitation of public comments allows any interested party to respond and to participate in the study. Another strength of the technique is that it results in the collection of a broad range of ideas and suggestions. Clearly, a number of the respondents committed a significant amount of time and effort in considering the questions posed in the notice.

On the other hand, the narrowness of the audience reached by the Federal Register notice is clearly a weakness. Further, the comments themselves might be interpreted in different ways; thus, the summary figures presented in this chapter should be viewed with caution and seen as representative of general trends. Selected quotations or synopses of the comments have been included to augment the figures and indicate the flavor of the comments received about a particular topic.

RESULTS

A total of forty responses were received as of Friday, June 15, 1990. Figure 4-1 identifies the respondents by constituency.

FIGURE 4-1: OVERVIEW OF RESPONDENTS

Type	N	Percentage
A = Federal agency	27	67.5%
C = Congress	0	0%
S = State/local government	0	0%
L = Library, academic, or other non-profit	10	25%
P = Other private sector	3	7.5%
TOTAL NUMBER OF RESPONDENTS	40	100%

Because the study team received two sets of comments from two respondents, which were eventually considered as one comment, comment numbers extend to 42 rather than 40. There were six responses offering no substantive views on the questions posed in the notice, or 15% of the total. All responses of this type were from Federal agencies.

QUESTION 1: Is it desirable and/or feasible to establish a Federal inventory/locator system for public government information? How might an information inventory/locator system for public government information be defined, and what objectives should the system accomplish?

As shown in Figure 4-2, respondents believed that some type of a GIILS was desirable for a number of reasons.

FIGURE 4-2: DESIRABILITY OF A GIILS

	YES	NO	DON'T KNOW/ NO ANSWER
A	18	7	8
L	10	0	0
P	1	0	2
TOTAL	29	1	10

Respondents believed that a GIILS could reduce duplication of information collection, provide a useful directory system, and improve the public's ability to locate information:

We believe that a comprehensive federal information inventory/locator system/catalog for public government information is feasible, highly desirable, and desperately needed (Cheryl Rae Nyberg and Bruce Kennedy, May 21, 1990, no. 12 in the Public Comments).

It would be desirable to establish such a locator system, if it does not duplicate the services or information available elsewhere (Sandy I. Morton, May 21, 1990, no. 23 in the Public Comments).

USIA does not have extensive experience with the inventory systems cited in your memo. However, we are familiar with GSA's Property Management and Automatic Data Processing Equipment/Data Systems. We believe that these would benefit from integration. Currently each system has separate reporting requirements ... These specific observations, generalized to the wider context of your study, suggest that consolidation where feasible is highly desirable (Henry E. Hockeimer, May 14, 1990, no. 7 in the Public Comments).

In short, respondents believed that such a system was, indeed, desirable.

Fifty-five percent of the respondents, as shown in Figure 4-3, suggested that a GIILS is feasible. However, forty percent did not answer or had no opinion.

FIGURE 4-3: FEASIBILITY OF A GIILS

	YES	NO	DON'T KNOW/ NO ANSWER
A	13	2	12
L	7	0	3
P	2	0	1
TOTAL	22	2	16

The general tone of the comments regarding this question was that a GIILS is feasible if it begins simply, is close to the users, is reasonable in what it tries to accomplish, and is phased in gradually:

A Federal inventory locator system for public government information is both desirable and feasible. However, unless planned and structured by the key participants, I believe the proposed system will not be an effective one (George P. Sotos, June 4, 1990, no. 39 in the Public Comments).

It is desirable to establish a federal inventory/locator system for public government information as long as it builds on already established systems at the Government Printing Office, the Library of Congress, the National Technical Information Service, and federal libraries, and uses a format acceptable to these indexing agencies (Carol C. Henderson, May 21, 1990, no. 19 in the Public Comments).

Such a system, if properly configured and made easily accessible, would improve the public's ability to locate government information products and services, and significantly reduce or eliminate overlap and duplication of effort in current indexing and bibliographic systems (Robert Houk, June 16, 1990, no. 44 in the Public Comments).

Figure 4-4 summarizes the number of references to a particular objective for an inventory/locator system. Respondents may have identified more than one objective in their comments.

FIGURE 4-4: OBJECTIVES OF A GIILS

	A	L	P	TOTAL
Improve Access/Dissemination	13	9	3	25
Foster Better Management	7	5	1	13
Produce Informed Citizenry	1	4	0	5
Reduce Costs	0	1	0	1
Don't Know/No Answer	4	1	0	5

Overwhelmingly, respondents agreed that the improvement of access to and dissemination of government information was an important objective of a GIILS:

An inventory of Federal government information activities is sorely needed – and has been recognized as a need for more than a decade. It should be publicly available through computer telecommunications and other means so that Federal agencies, state and local governments, and the public can identify and locate existing information resources (Gary D. Bass and David Plocher, May 30, 1990, no. 36 in the Public Comments).

The need for more efficient public access to federal government information is clear.... A significant number of requests, however, are... misdirected to this office.... These requests consistently illustrate the desirability and very practical need for a centralized inventory/locator system for public government information (Don Wilson, June 13, 1990, no. 42 in the Public Comments).

Better management of government information also was mentioned as an appropriate objective for a GIILS:

Effective management of the government's information holdings involves the entire life cycles of records, from creation to possible permanent archival retention. If the National Archives had a central role in the development and implementation of a government information locator system, it would have a better grasp of current records and information products (particularly electronic products) and would thus be in a better position to preserve those of permanent value (Page Putnam Miller, May 23, 1990, no. 31 in the Public Comments).

Another objective mentioned was reduction of paperwork burden, for example:

Because the Small Business Administration deals with one of the largest constituents [sic] in the United States of America, small businesses, we are very sensitive to all issues dealing with paperwork burden imposed on the public. Any action by Government that can help minimize the paperwork burden or assist the private sector in obtaining information maintained by the Federal sector is an endeavor that this agency supports (Frank M. Ramos, May 21, 1990, no. 16 in the Public Comments).

Others noted how goals for such a system supported basic tenets of a democratic form of government:

A means by which the public can identify government-produced publications, regardless of format, is both an important goal to achieve and would address a basic tenet of our democratic form of government – accountability to the people by government and access by the public to information produced by the government (Prudence S. Adler, April 19, 1990, no. 18 in the Public Comments).

Other possible objectives listed included preservation of documents for historical purposes (no. 31), elimination of duplicative information resources (no. 36), and reduction of information demands on agencies (no. 7).

The responses also were reviewed to determine the respondents' emphasis on either the present FILS or, more broadly, a GIILS of some sort as a Federal inventory/locator system. Figure 4-5 summarizes those responses.

FIGURE 4-5: LOCATOR SYSTEM EMPHASIS

	FILS	GIILS	BOTH	DON'T KNOW/ NO ANSWER
A	11	21	11	7
L	2	8	1	0
P	0	2	0	1
TOTAL	13	31	12	8

As shown in Figure 4-5, far more respondents discussed some form of a GIILS than the current FILS system. The GIILS-oriented comments discussed the general desirability and usefulness of such a system, examples of which have already been presented. Those discussing FILS often found fault with it:

The current FILS is suggestive of several things the new FILS should not be. First, its only readily-available format is microfiche.... Second, the system is poorly indexed.... Third the information provided is not what the user is looking for (Susan G. Hadden, May 23, 1990, no. 30 in the Public Comments).

The contents of this database [current FILS] promises to be very useful, but the presentation could bear some improvement (Bryan Stack, May 10, 1990, no. 2 in the Public Comments).

Our experience with past versions of the Federal Information Locator System (FILS) showed that system to be useless for the purpose the Office of Management and Budget (OMB) was trying to achieve: Identification of duplicative information collections among Federal agencies (Donald C. Demitros, May 15, 1990, no. 9 in the Public Comments).

Moreover, as the history of OMB's Federal Information Locator System (FILS) shows, a great objective can easily be derailed in the real world of funding constraints, institutional resistance, and partisan politics. It also runs the risk of being too diffuse, serving too many purposes and too many users. To avoid the pitfalls and make progress towards realization of the system's goals requires a rational plan for study, design, and phased in implementation (Gary D. Bass and David Plocher, May 30, 1990, no. 36 in the Public Comments).

These responses suggest that there were a number of concerns with the current FILS.

QUESTION 2: How might an inventory/locator system for government information be configured? What data should such a system include: information collection requests, information products and services, databases, information sources, or some combination of the above? How might the system best be administered?

Major issues of concern here are whether or not a system should be centralized, what should be included in the system, the sources of included items, possible system configurations, and the administration of the system. Figure 4-6 summarizes respondents' preferences concerning the overall design of a system. For purposes of this Figure, a pointer system is one that "points" users to the

location and source of the actual information needed; a database is a comprehensive catalog containing actual government information; and a clearinghouse is a database with a range of support and dissemination responsibilities.

FIGURE 4-6: TYPE OF SYSTEM

	POINTER	DATABASE	CLEARINGHOUSE	DON'T KNOW/ NO ANSWER
A	13	6	0	10
L	6	7	2	0
P	3	0	0	0
TOTAL	22	13	2	10

NOTE: A single response could be tallied under more than one heading if the suggested approach contained important elements of each.

A pointer system, with a multi-phased implementation approach, was preferred over other approaches. For example:

A simplified design for a multitiered system should be: (1) at the highest level, a catalog of broad categories of public government information linked to a locator which identifies which agencies and bureaus have information in these categories and which directs the searcher to more detailed locator systems; (2) at the middle level, more detailed registers of (a) information within each of the broad categories of the top level catalog and (b) catalogs and locators of the information holdings within major agencies; and (3) at the lowest level, inventories of specific information holdings or products, including such details as data element lists and definitions, means of access, contact points and costs (Don Wilson, June 13, 1990, no. 42 in the Public Comments).

From a comprehensive access to information point of view, it might be more useful to have an index to agency missions and have each agency listed with a point of contact to be responsible to assist people get information within the mission responsibility (Bonnie C. Carroll, May 11, 1990, no. 5 in the Public Comments).

We would endorse a system that directs information seekers to a "location" where they can obtain more detail on the desired subject. The locator should stress what data is [sic] available, how to obtain it, sources to contact for various subject matter, etc. In other words, give the client a starting place (John L. Okay, May 21, 1990, no. 20 in the Public Comments).

Some respondents saw a pointer system as the only feasible model, while others viewed a pointer system as a first step for implementing a GILS that would give access to actual information resources themselves. The following examples illustrate those two points of view:

A single Federal locator that goes to the data element level would not be practical or even feasible. I am leaning toward a multi-level locator which at the Federal level would provide a pointer to the organizations that offer data defined at a broad category level (Roxanne Williams, May 10, 1990, no. 11 in the Public Comments).

Through such a distributed FILS, it would be possible to determine the location of any federal system, determine its general content, and plan how to access that information. A user would first access the "Yellow Pages" to determine which agencies held information of interest. The user would then be referred (preferably electronically) to the agency-based FILS segments that was likely to hold the relevant information. Access to this information would then be handled on the specific terms and conditions required by the individual agencies. It is additionally necessary that the design for FILS take into account what the next generation of FILS should be a tool to actually access information in agency-based systems (John Chelen, May 30, 1990, no. 35 in the Public Comments).

Thus an ideal information "locator" would take the user, with a click of the mouse, directly to a database identified during a search of the locator. Although the technology for accomplishing this goal is available now, achieving the goal would require reconfiguring of existing data and existing institutions. Therefore, I propose a phased program, with the first phase resulting in a system through which people can search for the location of data relevant to their concerns; later the system should be implemented to allow immediate transition to identified data sources (Susan G. Hadden, May 23, 1990, no. 30 in the Public Comments).

A master system could be operated in one agency to serve as a gateway to the distributed system. (This might be conceived of as multiple gateways.) Thus, a user might call the central computer to request information related to pesticides.... Additionally, from the gateway, the user could perform the search in a one-stop shopping mode. The user would transparently enter the different agency databases and could receive a list of the information requested, along with descriptions of such information and agency contacts (Gary D. Bass and David Plocher, May 30, 1990, no. 36 in the Public Comments).

The notion of "one-stop shopping" also was suggested by Prudence S. Adler (April 19, 1990, no. 18 in the Public Comments):

The hope would be to create a "one stop shop" for the user when trying to identify what government information exists.

In general, respondents from Federal agencies favored a pointer system concept, while respondents from library, academic, and non-profit organizations asked for a system that will give access to the information itself.

A number of commentators offered specific suggestions about the system and how it might be developed. For example, Bass and Plocher (May 30, 1990, no. 36 in the Public Comments) suggested the following actions:

- Create a first phase pilot FILS
- Conduct two initial studies: an inventory of inventories within Federal agencies and market research to assess user needs
- Require agencies to establish their own Information Resources Directories
- Make FILS a decentralized distributed series of agency systems with a central gateway service over the next five years.

This approach is modeled after the RTK system developed by OMB Watch (OMB Watch, 1990b).

Respondents provided a number of suggestions about what information a Federal inventory/locator system should include. Some respondents want the system to include all information, regardless of format, developed by or collected for a government agency (Carol Henderson, May 21, 1990, no. 19 in the Public Comments). Others suggested that the scope be limited to government publications.

The following list indicates the range of government information proposed for inclusion in an inventory/locator system:

- Government information products and services prepared for public dissemination
- The government's major information systems
- Discontinued government publications or services
- All government information holdings
- Government information collection requests
- Agency activities and programs
- Archived materials
- Information contacts
- General reference information about agencies
- Hotlines
- Bulletin boards
- Clearinghouses
- Federal libraries
- Information matching activities
- Interest groups
- Acronyms and abbreviations
- Glossaries.

In addition to comments about the types of information to be included, some respondents provided comments on what information elements should be included in a GILS:

- Author
- Title of information
- Location (where available) and terms of access (costs, if any) of the information
- Format of the information (paper-based, diskettes, CD-ROM, etc.)
- Frequency of production and updates
- Abstract
- Key-words (descriptors)
- Size of file
- Computer language or software
- Sample size
- Years covered
- Number of years of data available and location of historic data
- Technical support (including human contact and user manuals)
- Where to obtain fee waivers and where to appeal a fee waiver denial
- Other subject access, including Standard Industrial Classification Code numbers, occupational codes, and other standard numbers required by OMB, the Census Bureau, and other agencies
- Statutory and regulatory basis
- Sponsoring or issuing agency
- Series designations
- Superintendent of Documents, Library of Congress, or other classification numbers.

However, one respondent pointed out that "data element requirements should be kept to the absolute minimum essential" (Clinton A. Booth, May 22, 1990, no. 22 in the Public Comments).

Some respondents suggested that an inventory/locator system should include information from Executive, Legislative, and Judicial branches, independent agencies, etc.:

The federal government should be defined to include: executive, legislative and judicial branches; independent agencies and commissions; government corporations and quasi-official agencies (Susan E. Tulis, May 26, 1990, no. 32 in the Public Comments).

In addition, two respondents emphasized that the lack of a clear, commonly-agreed upon definition of "public government information" presented problems with framing an appropriate response to the Federal Register notice (Steven W. Broadbent, May 22, 1990, no. 21 in the Public Comments; and Don Wilson, June 13, 1990, no. 42 in the Public Comments). In a broader context, as noted in Chapter 2, the lack of common definitions for important terms, e.g., "bibliographic control," also hinders the development of inventory/locator systems.

Another major issue related to system design and operation is centralization of control. Figure 4-7 summarizes respondents' preferences for a centralized or decentralized GILS.

FIGURE 4-7: CENTRALIZATION/DECENTRALIZATION

	CENTRALIZED	DECENTRALIZED	DON'T KNOW/ NO ANSWER
A	6	6	14
L	5	4	2
P	0	3	0
TOTAL	11	13	16

Most respondents did not address this issue, but there was a preference for a decentralized approach that would allow a single point of access to an inventory of inventories but leave control and description of the actual information resources with the agencies:

HHS does not believe a centralized FILS is that useful given the diversity of information activities conducted by Federal agencies. An alternative would be a centrally published "Directory of Directories" which would be a compilation of each agency's approach to providing information about its information resources (James E. Larson, May 29, 1990, no. 33 in the Public Comments).

Various respondents stated that any system should build upon and draw from already existing systems:

The development of special stovepipe automated systems with their own unique, and possibly redundant data collection burden should be avoided. We should capitalize on using existing, accepted data that has integrity from established data bases. The Army's approach to reporting its automated equipment inventory is in transition from such a stovepipe reporting system to an asset visibility approach that will draw directly from the Army's automated property books (Clinton A. Booth, May 22, 1990, no. 22 in the Public Comments).

In a similar vein, another respondent stated:

I wholeheartedly agree with the aims listed in the Federal Register for this broader FILS and say yes to your first question ... but with the understanding that it would build on the systems that already exist at the Government Printing Office, the National Technical Information Service and various federal agencies (Susan E. Tulis, May 29, 1990, no. 32 in the Public Comments).

A number of comments strongly suggested that control of actual information resources belongs with the agencies, e.g.:

Whatever government-wide system is established, NSF and other agencies should continue to have the flexibility to shape the data items they need to include for their own purposes (Jeff Fenstermacher, May 23, 1990, no. 27 Public Comments).

In interpreting responses to this question of centralization/decentralization, respondents may have had different definitions and uses of the terms in mind. Thus, the summary shown in Figure 4-7 should be used with caution.

As shown in Figure 4-8, online access to a GILS was the most commonly recommended means for access to the system, followed by CD-ROM.

FIGURE 4-8: SYSTEM FORMAT

	A	L	P	TOTAL
Online	8	7	2	17
CD-ROM	3	5	0	8
Print	3	2	0	5
Telephone	0	2	0	2
Floppies	1	0	0	1
Microform	0	1	0	1
Human	0	1	0	1
Magnetic Tape	0	0	0	0
Don't Know/ No Response	19	2	1	22

NOTE: More than one response per respondent was included in this tabulation.

An online system would be necessary for any type of distributed system, such as the one described earlier by Bass and Plocher (no. 36). CD-ROM would also be useful because of its large storage capacity. Print was the third most recommended medium by respondents. A spokesperson for the Government Documents Round Table, American Library Association, suggests that CD-ROM and print editions would be useful complements to an online system in order to meet the needs of a greater body of users (Susan E. Tulis, May 26, 1990, no. 32 in the Public Comments). GPO states that it currently deals primarily with print documents but would be willing to have its mandate expanded to incorporate electronic formats as well (Robert Houk, June 16, 1990, no. 44 in the Public Comments).

With regard to format, one respondent (no. 30) questioned why Government information distributed on floppy diskettes is much more expensive than information distributed on microfiche, especially when more users have access to microcomputers than microfiche readers. Nonetheless, there was some consensus among respondents on the importance of producing online, CD-ROM, and print versions of an inventory/locator system.

QUESTION 3: Would it be desirable to standardize information elements in inventory/locator systems maintained by Federal agencies so that agency systems could be collected into a government-wide inventory?

There was widespread agreement among the respondents that standardizing various elements of a GILS would be necessary for effective and efficient information sharing and dissemination. It was often noted that, in a general sense, there must be standards for organizing and accessing the information in a government-wide system. A number of individuals commented on the desirability of using existing library science standards for the creation of machine-readable bibliographic records:

Requirements for standardizing data entry to the index would have to be established to ensure conformity among a potentially vast range of inputs, and to provide for uniformity of indexed items (Robert W. Houk, June 16, 1990, no. 44 in the Public Comments).

Use standard data elements for all records in a particular format ... and uniform basic data elements across all categories of materials (that is, some essential data elements should appear in records from all categories while additional data elements in each record should be unique for the format of the underlying information source) (Cheryl Rae Nyberg and Bruce Kennedy, May 21, 1990, no. 12 in the Public Comments).

If we could extend the experience from the bibliographic world in defining standards for entries for information resources more broadly and promote these standards, then as natural affinity groups create inventories and directories, these could be networked with each other (Bonnie C. Carroll, May 11, 1990, no. 5 in the Public Comments).

Two groups of federal agencies [GPO, LC] already cooperate in the production of cataloging/indexing/locator systems.... These agencies use the LC/MARC system and cooperate in the establishment of standards for the selection of subject terms and for the form of names for agencies and individuals so that they can be found in the database (Carol C. Henderson, May 21, 1990, no. 19 in the Public Comments).

A standardized format for exchanging information is crucial to the success of a locator system. It may be worth noting that the National Archives of Canada has adopted the MARC (Machine Readable Cataloging) format for their automated system which links archives and their users (Page Putnam, May 30, no. 31 in the Public Comments).

Some respondents focused on the notion of "high level" standardization only; several individuals noted that such standardization need only be applied to the central inventory and not to the inventories maintained by individual agencies:

Standardizing elements with agency systems for the purpose of collecting a government-wide inventory could decrease the value and usefulness of agency inventory systems. It should be sufficient to define government-wide standards only for those items of information included in higher level information inventory/locator systems, and to require adherence to these standards

only for transferring information from agency systems to higher level ones (Don W. Wilson, June 11, 1990, no. 42 in the Public Comments).

It would be desirable to develop a small set of very high-level information elements and a number of application-oriented sets of standardized information elements. A single detailed set would be extremely difficult to achieve (David K. Jefferson, May 14, 1990, no. 4 in the Public Comments)

Standardization of information elements is a desirable goal but not very practical. I don't believe we would get much farther than standardizing the format of presentation of the elements (Roxanne Williams, May 10, 1990, no. 11 in the Public Comments).

Other respondents noted the problems and difficulties with developing standards for such a system:

It may be desirable but is not currently feasible to standardize information elements so that agency systems could be collected into a government-wide inventory.... The only feasible approach is to develop a high-level index of all Federal information sources, with each agency maintaining a comparable and compatible lower-level index of its own information. As agencies standardize information elements, it may be feasible in the future to establish government-wide information standardization (Steven W. Broadbent, May 22, 1990, no. 21 in the Public Comments).

Because of the wide disparity in size and complexity among Federal agencies, attempting to standardize information elements for a detailed inventory of data collections is an effort almost certain to fail (Charles R. Tierney, May 21, 1990, no. 25 in the Public Comments).

Finally, one respondent noted the importance of creating standard terms and elements that were current and flexible:

[W]e would underscore our belief that the utility of any system of standardized codes ... is limited if the code structures or thesaurus of terms are not dynamic - growing to accommodate new technology or terms that enter current usage and recognizing that other technologies or terms fall into disuse and should be removed (Henry E. Hockeimer, May 14, 1990, no. 7 in the Public Comments).

The thrust of the comments was that standards were very important and, to the extent possible, should be developed and implemented if an inventory/locator system is to be successful.

QUESTION 4: What government information inventory/locator systems exist currently? How might they be improved to best meet the needs of both the government and the public?

Respondents answered that numerous information inventory/locator systems currently exist in the Federal Government and they offered some examples of such systems. Either the exact titles or descriptions of systems were provided. The list of the inventory/locator systems cited by the respondents is divided into two categories: current systems existing in Federal agencies and systems being planned or in the process of implementation.

Current systems in Federal agencies (as listed by respondents):

- NASA inventory of numeric databases
- DOE inventory of numeric databases
- Resource directories of relevant data in emergency management

- GSA's Property Management and Automatic Data Processing Equipment/Data Systems
- Directory of Computerized Data Files: A Guide to U.S. Government Information in Machine-Readable Form
- Federal Information Locator System
- Federal Information Sources and Systems: A Directory Issued by the Comptroller General (1984)
- Government Reports Announcements & Index
- Monthly Catalog of United States Government Publications
- Privacy Act Issuances Compilation
- Publications Reference File
- Reports to be Made to Congress (House Document No. 101-133)
- Requirements for Recurring Reports to Congress: A Directory Issued by the Comptroller General (1984)
- OMB Reports Management System
- NARA Life-Cycle Tracking System
- Federal libraries catalogs
- Defense Technical Information Center Database
- ERIC Databases
- NTIS Databases
- National Library of Medicine Catalog
- National Agricultural Library Catalog
- Sources (Department-wide inventory of sources of Commerce information available on floppy diskette from NTIS)
- DOE System Review Inventory System (SRIS)
- Environmental Protection Agency program FINDS (Facility Index System)
- HHS Data Inventory Fiscal Year 1988 (Directory of ongoing and planned data projects and systems within the Department of Health and Human Services)
- Environmental Protection Agency's Information Resources Directory
- Inventories of information products collected under OMB Circular A-3
- Financial Management Systems
- Department of Veterans Affairs Publications Index
- Department of Veterans Affairs Recurring Reports Bulletin
- Department of Veterans Affairs Information Locator System
- NARA Center for Electronic Records
- Federal Register publication system
- National Audiovisual Center Inventory
- Schedules and related documentation concerning agency records
- NARA finding aids to Federal records of permanent value which are transferred into the National Archives
- Inventories of agencies' major information systems
- Inventories of agencies' systems of records subject to the Privacy Act
- Inventories of agencies' audiovisual products
- Department of Agriculture Departmental inventory
- Library of Congress
- Consumer Information Center
- Federal Library and Information Center Committee Alix Bulletin Board.

Systems planned or in process of implementation (as listed by respondents):

- NARA automated databases of information about agency records and National Archives holdings
- National Science Foundation's Division of Science Resources Studies clearinghouse for the collection, interpretation, and analysis of data on scientific and engineering resources and for provision of information for policy formulation by other agencies of the Federal Government
- NSF electronic access to publications, program announcements, and award information
- Interagency Working Group on Global Change data inventory.

Respondents offered several specific suggestions for improving current information inventory/locator systems:

- Modification in the presentation of FILS on microfiche (Bryan Stack, May 10, 1990, no. 2 in the Public Comments; Susan G. Hadden, May 23, 1990, no. 30 in the Public Comments).
- Revision and update of the classification code of GSA's Automatic Data Processing Equipment/Data System (Henry Hockeimer, May 14, 1990, no. 7 in the Public Comments).
- Better set of guidelines to Federal agencies regarding inventories to maintain under the Computer Security Act (Steven W. Broadbent, May 22, 1990, no. 21 in the Public Comments).
- Consolidation and addition of information on all system components, disposable and permanent, in the Life-Cycle Tracking System (Frank M. Ramos, May 21, 1990, no. 16 in the Public Comments)
- Notification to GPO of agencies' electronic products and services (Prudence S. Adler, April 19, 1990, no. 18 in the Public Comments)
- Development of gateways to search various computer databases housed in federal agencies [to] facilitate locating government information (Carol C. Henderson, May 21, 1990, no. 19 in the Public Comments)
- Fuller compliance with existing laws and regulations (Don W. Wilson, June 11, 1990, no. 42 in the Public Comments).

The respondents also identified a number of gaps regarding information inventory/locator systems created by Federal agencies:

- Lack of awareness and evaluation of existing inventory/locator systems:

There is a fair amount of anecdotal information about existing inventories involving computer security, computer matching, privacy, GPO, NARA, and others. However, there has [sic] not been comprehensive efforts to identify and evaluate these inventories (Gary D. Bass and David Plocher, May 30, 1990, no. 36 in the Public Comments).

- Lack of incentives for agencies to submit current and accurate data:

These problems are typical when those responsible for submitting the data do not require the data for their own use. The lack of incentive for the agency data submitters to keep the OMB-FILS data base current and accurate needs to be addressed before this project can be expected to be successfully implemented (Charles R. Tierney, May 21, 1990, no. 25 in the Public Comments).

Two respondents emphasized that inventories of sensitive systems should be excluded from any government-wide locator system:

It would not be appropriate to include the inventories of sensitive systems, such as those required by the Computer Act of 1987, in any public access inventory or databases (Steven W. Broadbent, May 22, 1990, no. 21 in the Public Comments).

DOE does not believe the "inventory" of sensitive systems should be included in a Federal inventory/locator system (Charles R. Tierney, May 21, 1990, no. 25 in the Public Comments).

Respondents identified two systems for additional investigation: the Smithsonian Scientific Information Exchange (SSIE) for its failed experience (Bonnie C. Carroll, May 11, 1990, no. 5 in the Public Comments) and the Right-to-Know Computer Network (RTK NET) as a successful model, (Gary D. Bass and David Plocher, May 30, 1990, no. 36 in the Public Comments).

Finally, the value of the Unified Agenda of Federal Regulations (printed twice a year by the General Services Administration, Regulatory Information Service Center and as required by 5 U.S.C. 602 and E.O. 12291) was challenged by one respondent:

We question the value of the semi-annual agenda of regulations. While we are unaware of any significant public inquiries as a result of its publication, considerable staff hours are spent compiling and updating the agenda twice a year. Each semiannual agenda for the Federal Government consists of approximately 1360 pages in the Federal Register. At a Federal Register publication cost of \$375 per page, the annual cost to the Federal Government for the two agenda issues is approximately \$1.02 million (Steven W. Broadbent, May 22, 1990, no. 21 in the Public Comments).

In short, respondents identified a number of systems. The degree to which those mentioned are inventory/locator systems, however, might be a matter of some debate.

QUESTION 5: To what degree should an inventory/locator system be considered as part of, or linked to, Federal information resources management activities?

Of the 40 respondents, 18 felt that an inventory/locator system should be linked to Federal information resources management activities, 3 were against the idea, and 19 did not answer or did not know. The breakdown by constituency is shown below.

FIGURE 4-9: LINKING INVENTORY/LOCATOR SYSTEMS TO IRM

	YES	NO	DON'T KNOW/ NO ANSWER
A	10	3	14
L	7	0	3
P	1	0	2
TOTAL	18	3	19

Note: Each response was tallied in only one column.

There appeared to be three types of responses. First, there were those who saw no reason for linking inventory/locator systems to IRM:

The Department does not envision a Federal information locator system as assisting, in any way, in the management of HUD's information resources. To the extent that the Department might be called upon to support such a system, there would be a net loss of resources without commensurate benefits (Donald Demitros, May 15, 1990, no. 9 in the Public Comments).

Such negative comments, as illustrated in Figure 4-9, came only from agencies. They parallel similar comments from some agency staff offered during the interviews reported in Chapter 3.

Second, there were those who believed that a GIILS might be useful for dissemination but were less certain about its connection with IRM:

It seems more important for the inventory/locator system to be linked with the agency's information dissemination infrastructure eg. [sic], a library, than the IRM organization per se (Lorin L. Goodrich, May 18, 1990, no. 28 in the Public Comments).

Third, some feel that agency IRM and a locator system are inextricably linked:

The inventory/locator system should be an integral part of the Information Resources Management (IRM) function. In fact, the system could be an indispensable tool that enables Federal IRM managers to begin managing information (as opposed to computers) in the way Congress intended in the Paperwork Reduction Act (Steven W. Broadbent, May 22, 1990, no. 21 in Public Comments).

Comments regarding this question suggest that some agencies have a broad range of views about and definitions for what IRM is and how it might be best implemented.

QUESTION 6: How well do existing statutes and regulations provide guidance and direction to Federal agencies in maintaining inventory/locator systems? What specific statutes and regulations provide guidance? Should steps should be taken to revise these statutes and regulations?

Sixteen respondents addressed this question in whole or in part. Seven comments addressed existing statutes. Many respondents answered that there were numerous statutes and regulations related to an inventory/locator system, but did not specify them. Overall, the comments noted that:

- Existing legislation does not adequately address automated systems.
- Existing statutes and regulations provide limited or inadequate guidance regarding the maintenance of inventory/locator systems.
- 44 U.S.C. 1710-1711 does not explicitly cover information products and services in electronic format nor does it provide GPO with "statutory authority to compel [agencies'] compliance" (Robert W. Houk, June 16, 1990, no. 44 in the Public Comments).

Some respondents believed that excessive guidance and direction should be avoided, particularly regarding how inventory/locator systems should be implemented. One respondent added that statutes should be neither too permissive nor too directive (S. G. Hadden, May 23, 1990, no. 30 in Public Comments). Others thought that additional legislation would be useful:

We do emphasize information dissemination to the public in the Department of Agriculture because it is inherent in our responsibilities. As a result, we are willing to put resources into well planned tools such as locators that meet the needs of our public users. Perhaps more agencies should have this requirement added to their basic responsibilities through legislation (Roxanne Williams, May 10, 1990, no. 11 in the Public Comments).

Respondents listed the following current and proposed statutes and regulations as providing guidance on inventory/locator systems (note: written as cited by respondents):

Current statutes and regulations:

- 44 U.S.C. 1710-1711
- P.L. 99-500
- Paperwork Reduction Act (P.L. 96-511)
- 36 C.F.R. 1228
- OMB Circular A-130
- OMB Circular A-114
- OMB Circular A-3
- Freedom of Information Act
- Computer Matching and Privacy Protection Act
- Title III of the Superfund amendments and Reauthorization Act of 1986
- Computer Security Act
- Unified Agenda of Federal Regulations
- Sunshine Act
- Administrative Procedure Act
- Records Act
- Privacy Act
- Printing and Binding Regulations
- Federal Property Management Regulations
- Federal Acquisition Regulations
- Federal Personnel Regulations
- Statutes creating NTIS, ERIC, National Library of Medicine, and other National Libraries
- Federal Information Resource Management Regulation, Part 201-26.000
- Defense Automated Resources Management Manual (DOD 7950.1M Chapter Four).

Proposed statutes:

- Government Printing Office Improvement Act of 1990 (H.R. 3849)
- Paperwork Reduction and Information Resources Management Act of 1989 (H.R. 3695)
- Federal Information Resources Management Act of 1989 (S. 1742)
- Department of Environmental Protection Act (H.R. 3847).

Four respondents believed that current statutes and regulations provide adequate authority for the development of an inventory/locator system. However, two noted that there are problems in the enforcement of these statutes, for example:

Laws and regulations currently exist that provide guidance and direction to Federal agencies in maintaining information inventory locator systems. Additional laws are not needed, but additional enforcement and a national commitment in dollars and staff to do the job are needed (Susan A. Tulis, May 26, 1990, no. 32 in the Public Comments).

Respondents also offered suggestions regarding the revision of some statutes and regulations:

- Create a Federal Information Locator Council (statute or regulation by which it should be created is not detailed)

- Provide additional guidance and direction in maintaining inventories to comply with the Computer Security Act
- Give utmost consideration for privacy issues (Steven W. Broadbent, May 22, 1990, no. 21 in the Public Comments).

Comments were made on current efforts to amend, merge, and revise some statutes and regulations:

- The current process of merging and broadening OMB Circulars A-130, A-3 and A-114 is seen as "advisable" (Don W. Wilson, June 11, 1990, no. 42 in the Public Comments).
- Adequate statutes will be available when "differences between Senate and House versions [S. 1742 and H.R. 3695] are resolved" (Edward G. Lewis, May 25, 1990, no. 38 in the Public Comments)
- The proposed H.R. 3849 should provide "the necessary clarification of authority [by amending] Title 44 to provide explicit recognition of GPO's authority to index and catalog information products and services in electronic formats" (Robert W. Houk, June 16, 1990, no. 44 in the Public Comments).

Responses to this question suggest that there are differing views as to the statutory basis for an inventory/locator system. Moreover, there are numerous suggestions for improving the policy guidelines for an inventory/locator system.

QUESTION 7: What are appropriate roles and relationships for OMB, other Federal agencies, the private sector, the library and information science community, and other groups in the development, design, and operation of an information inventory/locator system for public government information?

Twenty-seven respondents addressed this question. Federal agencies thought that OMB should:

- Provide leadership and guidance in the development, design, and implementation of a GILS
- Ensure oversight (e.g., by conducting IRM review) and ensure enforcement of agency compliance
- Provide incentives and appropriate resources to Federal agencies to cooperate.

The following comments are representative of a number of the respondents' perceptions of OMB roles:

Strong leadership will be required to design and develop an information inventory/locator system. OMB should provide that leadership by taking the lead role in defining the scope, structure, and content of the system, for establishing regulations for its operation, and for assigning responsibility for operation of its various levels and parts (Don W. Wilson, June 11, 1990, no. 42 in the Public Comments).

OMB should provide incentives for other Federal agencies to cooperate in the development of application-oriented standardized information elements and possibly in the development of standard hardware/software system architectures (David K. Jefferson, May 14, 1990, no. 4 in the Public Comments).

We believe that this is a good opportunity for OMB to flex its "management" side of the house and provide oversight to set up, implement, and manage this government-wide program (Michael Doyle, May 24, 1990, no. 34 in the Public Comments).

Two respondents (Steven W. Broadbent, May 22, 1990, no. 21; and Edward G. Lewis, May 25, 1990, no. 38 in the Public Comments) answered that OMB should administer a GIILS, while one response (Gary D. Bass and David Plocher, May 30, 1990, no. 36 in the Public Comments) emphasized that OMB should not have responsibility for the actual operation of such a system.

Roles proposed for the National Technical Information Service (NTIS) were to:

- Operate and maintain a GIILS
- Be a referral center, but not a depository of all information products and services
- Be a distributor of each agency-wide information inventory/locator systems
- Manage a government-wide STI information inventory/locator system.

Roles proposed for the Government Printing Office (GPO) were to:

- Develop and operate a GIILS
- Offer gateways services for a GIILS
- Be, through the Depository Library Program, a depository of each agency-wide information inventory/locator system.

Roles proposed jointly for GPO and NTIS were to:

- Provide technical guidance to the agencies (in cooperation with Library of Congress, National Agricultural Library, National Library of Medicine, and NIST)
- Administer a GIILS jointly.

Respondents also proposed that the National Institute of Standards and Technology (NIST) provide guidance in the development of technical standards; that the National Archives and Records Administration (NARA) have a central role in the development and implementation of GIILS; that the Office of Science and Technology Policy (OSTP) provide guidance in STI; and that the Federal Library and Information Center Committee (FLICC) add capabilities to its bulletin board to make it accessible to public libraries.

Numerous other agencies were mentioned as potential contributors to the design and development of a GIILS, such as the Administrative Conference of the United States, the Administrative Office of the Courts, etc. (see Cheryl Rae Nyberg and Bruce Kennedy, May 21, 1990, no. 12 in the Public Comments and Thomas S. Shorebird, May 25, 1990, no. 26 in the Public Comments).

Some respondents identified appropriate roles and relationships for Federal agencies regarding an inventory/locator system. It was suggested that agencies should:

- Be responsible for providing all their information products and services to an indexing agency (some could prepare initial descriptions of their products and services)
- Manage their own information resources themselves
- Implement their own "lower-level information index system," (Steven Broadbent, May 22, 1990, no. 21 in the Public Comments)
- Produce their own information inventory/locator systems.

The responses from the GPO (Robert W. Houk, June 16, no. 44 in the Public Comments), NTIS (Thomas J. Collamore, June 11, 1990, no. 41 in the Public Comments), and NIST (David K. Jefferson, May 14, 1990, no. 4 in the Public Comments), proposed their respective organizations to operate and manage an inventory/locator system if certain conditions could be met. Those included appropriate funding, legal authorization, enforcement capabilities, etc.

In general, the respondents saw the library and information science community as a significant participant in providing guidance for standard formats and system design, and in serving as intermediaries for a GIILS. The respondents specifically mentioned the American Library Association, the American Association of Law Libraries, and the Special Libraries Association as having important roles.

The respondents also saw the private sector as a significant participant to be consulted in the development of an inventory/locator system. Specific roles identified for the private sector were to:

- Add value to the files after buying agency's files at "reasonable fees" (Prudence S. Adler, April 19, 1990, no. 18 in the Public Comments)
- Use the locator system "to identify products/service that [the private sector] would like to republish, or use parts of for a new products" (Carol C. Henderson, May 21, 1990, no. 19 in the Public Comments)
- Obtain contracts on segments of the system or "to bid on the rights to establish and sell access to data in the same manner as other current data services" (Lorin L. Goodrich, May 18, 1990, no. 28 in the Public Comments).

One respondent commented that "the private sector and the library and information science community could provide some guidance, but most of the effort would need to and should come from the agencies" (David K. Jefferson, May 14, 1990, no. 4 in the Public Comments).

Three respondents suggested the creation of some type of an advisory group to assist in the planning and development of a GIILS. Recommendations included:

- An interagency working group of interested individuals with expertise in agency-specific inventory/locator systems
- A Federal Information Council to include interested groups, departments, and small agencies in order to "ensure that agencies dealing most frequently with the public are not governed by those that do not" (Frank M. Ramos, May 21, 1990, no. 16 in the Public Comments)
- A Public Advisory Body to include representatives from the private sector, the library and information science community, and other groups.

Some respondents suggested that other user groups, such as the Association of Public Data Users, should be consulted in the development of a GIILS.

QUESTION 8: How can OMB encourage Federal agencies to maintain better government information inventory/locator systems (1) as part of agencies' information resources management activities and (2) to improve access to public government information?

Most respondents were supportive of OMB's efforts to improve IRM and public access to government information. In addition, some lauded OMB's sponsorship of this study, were pleased with the opportunity to participate, and offered to assist in future endeavors involving GIILS.

Answers to this question repeat some of the roles identified in Question 7. Leadership and guidance, provision of oversight, enforcement of current legislation, and providing incentives and appropriate resources were cited as ways OMB could encourage agencies to maintain better government information inventory/locator systems. Listed below are representative comments, organized by general topics:

Policy

- Assign and control "inventories of components of major information systems through a centralized data call to the Senior Agency Official" (Frank M. Ramos, May 21, 1990, no. 16 in the Public Comments).
- Promulgate system design, documentation, and access standards within the framework of FILS (John Chelen, May 30, 1990, no. 35 in the Public Comments).
- Ask representative agencies to define the objectives [of the system] for OMB" (George P. Sotos, June 4, 1990, no. 39 in the Public Comments).
- Continue the process of "identifying and streamlining the regulations it has issued on information management" (Don W. Wilson, June 11, 1990, no. 42 in the Public Comments).

Operations

- Reward agencies who are complying with inventories requirements, either through:
 - "monetary compensation to individuals, or
 - priority consideration on processing agency request for actions or approval from OMB" (Frank M. Ramos, May 21, 1990, no. 16 in the Public Comments).

It was also suggested that OMB should provide "funding to all agencies with bonifide [sic] plans for or current inventory/locator systems as part of existing IRM programs" (Lorin L. Goodrich, May 18, 1990, no. 28 in the Public Comments).

- Implement an easy process, less bureaucratic as possible, which draw upon existing sources when possible (Charles R. Tierney, May 21, 1990, no. 25 in the Public Comments).
- Leave agencies with the "flexibility to shape the data items they need to include for their own purposes" (Jeff Fenstermacher, May 23, 1990, no. 27 in the Public Comments).
- Include the development of data integration keys or linkages that will enable matching across different agency databases (John Chelen, May 30, 1990, no. 35 in the Public Comments).
- Encourage agencies "to develop prototypes with appropriate security and read-only access. This would afford agencies the opportunity to obtain feedback and perfect existing in-house inventory systems" (Edward G. Lewis, May 25, 1990, no. 38 in the Public Comments).

IRM

- Through guidance with the agencies and cooperation with GSA, elevate the role of IRM officers in the Federal agencies (Prudence S. Adler, April 19, 1990, no. 18 in the Public Comments).
- Take a leadership role in IRM by establishing a professional information management function in its own organization (Steven W. Broadbent, May 22, 1990, no. 21 in the Public Comments).
- Ensure, in collaboration with GSA, "that evaluation of information management inventories is part of the triennial reviews of information management programs and actively support and demand compliance with National Archives regulations of the management of records" (Don W. Wilson, June 11, 1990, no. 42 in the Public Comments).

Access

- Draw upon existing efforts of other Federal information-related groups such as the Federal Publishers, the Association of Government Communicators, the Depository Library Council, the Federal Library and Information Center Committee, CENDI (Prudence S. Adler, April 19, 1990, no. 18 in the Public Comments; and Carol C. Henderson, May 21, 1990, no. 19 in the Public Comments).
- Include actual information access as a major element of FILS design objectives (John Chelen, May 30, 1990, no. 35 in the Public Comments).
- Sponsor a major government initiative, separately, for improving public access to government information, possibly making the initiative a Federal government-wide, TQM recognized program (Lorin L. Goodrich, May 18, 1990, no. 28 in the Public Comments).

Enforcement

- Review reports stating agencies' compliance with their inventory/locator obligations and agencies' budgets "to encourage agency performance in fulfilling inventory/locator obligations" (Carol C. Henderson, May 21, 1990, no. 19 in the Public Comments).

In short, the comments in response to this question offered a range of ideas and suggestions for how OMB might develop inventory/locator systems, improve Federal IRM, and improve the dissemination of government information.

SUMMARY

One key theme from the comments is the general support for some type of a GIILS and the lack of support for the existing FILS. A number of the respondents spent considerable effort in offering ideas and suggestions for the development of a GIILS, discussing issues related to a successful inventory/locator system, and emphasizing that the Federal government has responsibility for such a system, needing to improve its management of information resources and to enhance access to public information.

Another key theme that appears throughout the comments is the importance of agency incentives in the implementation and operation of an inventory/locator system. The sense of the comments was that "agencies will not put the resources into this activity unless it makes sense to them, it isn't excessively burdensome in design, and there is something in it for them." Moreover, the development of an inventory/locator system:

Depends on an institutional environment in which providers and users of information have an incentive to use the system. There must be a commitment to finance the effort, and an understanding of how agencies benefit (Gary D. Bass and David Plocher, May 30, 1990, no. 36 in the Public Comments).

Yet, specific suggestions for what these incentives might be or how to convince agency representatives that a GIILS would, in fact, benefit their agency were limited.

A twist to the incentives and benefits issue is given by agencies with some form of an inventory/locator system in place. Some of these believe that they are already successfully disseminating their information to the public. They believe that they know their clients and their clients' information needs. Apparently, some fear that a GIILS might complicate, and perhaps weaken, their information dissemination programs rather than enhance them.

Two questions that preoccupied some respondents is: Who are the projected users for an information inventory/locator system? What is the demand for such a system? To some extent, the agencies do not recognize that they would be a major user group for such systems. This concern also suggests that, should OMB move forward with the development of such a system, a clear and explicit statement of the utility of a GIILS for agency staff should be articulated.

Some agencies fear that a GIILS would just be another burden on them. Many respondents fear that a GIILS might degenerate into a huge, centralized, "monster-like" information system full of inaccurate and useless data. The term "government-wide" frequently was confused with "centralized," and apparently, conjured up concerns in agencies about losing control of their information resources, products, and services. This confusion added to fears about developing a "monster-like" system.

Virtually all of the non-agency respondents and most of the agencies did tend to see the Federal government as having the responsibility to implement and maintain a GIILS, but there is no clear consensus regarding which agency(ies) should operate and manage such a system. There was some sense that a pointer system, i.e., a directory to directories of agency programs and/or information products and services, is a feasible approach that agencies might accept—if conditions such as funding, standards, and real enhancement of their information management and dissemination programs were met.

In terms of the relationship between a GIILS and IRM, the comments are mixed. Non-agency respondents believe that such links are important and necessary for improved dissemination. For the agencies, however, the link was less clear. Specific ways in which an inventory/locator system would improve IRM are not immediately evident to the agencies. Further, the agencies held varying views about the role of IRM, what it is, and how it should be implemented.

In general, respondents were supportive of OMB's efforts to address issues related to inventory/locator systems. They thought that OMB should provide leadership and guidance regarding information management and public information dissemination; they thought that OMB should provide more specific guidance on how best to do this. OMB should not, however, operate an information inventory/locator system. The responses indicate that OMB's leadership should be at the policy level and should clarify and simplify policy/procedures and not impose additional burdens on the agencies.

The comments offer a wide range of views and suggestions about information inventory/locator systems, dissemination of government information, and IRM. It is difficult to capture the range and scope of those comments in a summary chapter. The responses, however, suggest that the scope and objectives of the study were interpreted in various ways. This broad interpretation contributed to the breadth and usefulness of the comments, and provided valuable insights for the recommendations offered in the next chapter.

CHAPTER 5 CONCLUSIONS AND NEXT STEPS

The findings presented in the previous three chapters suggest that some degree of consensus exists among the various stakeholders about the design and development of a government-wide information inventory/locator system (GIILS). There is wide agreement that the Federal government has a responsibility to develop some type of a inventory/locator system to improve the access to and dissemination of public information resources.

The Federal information landscape has become increasingly complex, characterized by new uses and applications of electronic technologies, direct involvement in information dissemination by more Federal agencies, and a patchwork of policy instruments related to information inventory/locator systems. New approaches for navigating this landscape are needed. Government officials and the public at large find it increasingly difficult to identify and obtain public information. The decentralized approach to Federal information management, while appropriate and perhaps necessary at an agency level, results in frustration for users as they attempt to identify and obtain Federal information.

Moreover, the traditional finding tools and indexes, such as the Monthly Catalog, Government Reports Announcements and Index, and a host of agency indexes, were developed for a paper-based information environment. Regardless of their overall usefulness in that context, they tend to give inadequate attention to information resources in electronic formats and encourage a myopic, agency-based perspective for identifying and accessing information. The perspective needed is one that supports finding tools that cut across agencies, e.g., government-wide, and tools that encompass the broad range of formats in which Federal information resources appear. Such a perspective is essential for improved access to and dissemination of government information and for successful Federal information resources management.

Currently, a number of factors are in place that appear to support the development of a GIILS. The debates over the reauthorization of the Paperwork Reduction Act, resulting in the proposed Federal Information Resources Management Act of 1989 (S. 1742) and the Paperwork Reduction and Federal Information Act of 1990 (H.R. 3695), have brought increased attention to the importance of and need for a GIILS. There is general agreement that the existing FILS has little utility as a means for accessing government information and either ought to be scrapped or significantly modified. While the general design and details of a GIILS must still be worked out before any system could be implemented, a number of suggestions and recommendations can be offered to move toward its realization.

Perhaps most importantly, there is widespread interest in a GIILS, and many of the participants and public comments commended OMB for initiating this study. For example, comments from the Department of Agriculture included, "I am pleased that you took this initiative" (Williams, 1990, no. 11 in public comments), and OMB Watch wrote (Bass and Plocher, 1990, no. 36 in public comments):

We strongly endorse the study being undertaken by Syracuse University's Center for Science and Technology and wholeheartedly support OMB's attempts to involve the public in the development of the study.

These and similar comments from many of the interviewees and commentators suggest a number of intangible but very important benefits resulting from the study:

- The study has been a catalyst for the public discussion of GIILS, dissemination of public information, and the role of IRM in dissemination activities
- A range of individuals representing a broad range of stakeholders interested in GIILS have been brought together to discuss relevant issues and have expressed surprisingly similar views
- As the study progressed, increased attention and interest in the study was evident
- OMB-OIRA has generated much good-will by initiating the study, demonstrating their interest in improving dissemination of government information, and obtaining input from a range of stakeholders.

The study served both as a means of drawing attention to a very important topic of concern to a range of stakeholders and as a catalyst to produce specific proposals on how best to move forward with a GIILS.

Within this general context of consensus building, the purpose of this chapter is to describe key factors that should be considered in the design of a GIILS, review a number of models that offer possible approaches for designing a GIILS, and to suggest possible activities for OMB-OIRA if it wishes to move forward with the design of a GIILS. In addition, the chapter outlines a number of research areas that will require careful consideration if a GIILS is to be developed. Overall, the theme of this chapter is that a GIILS of key finding tools is both feasible and desirable and that OMB should develop strategies to move toward the realization of a GIILS.

KEY AREAS OF CONSENSUS FOR DEVELOPING A GIILS

The findings from the policy analysis, the interviews, and the comments on the Federal Register notice suggest key areas of consensus that can be used as a basis for the development of a GIILS. Figure 5-1 summarizes these key areas, and this section briefly describes them.

The Government Should Be Responsible for GIILS Development

There was wide agreement that the Federal government has a responsibility for providing better access to and dissemination of government information. While there are numerous other stakeholders interested in the development of a GIILS, it is the government that must first make the decision to develop a GIILS and provide the leadership and commitment for its successful design and implementation. Moreover, the development of a GIILS is one of government's unique responsibilities and not a responsibility of other stakeholders. Spokespersons for other stakeholder groups are interested in enhancing and adding value to such a system, but there was general agreement that the government is responsible for the development and operation of the basic system.

OMB Should Develop and Enforce Clear and Consistent GIILS Policy Guidelines but Should Not be Involved in the Actual Operation of a GIILS

A successful GIILS will require OMB to develop clear and specific policy guidance in the area of dissemination. This guidance should be based on input from the agencies and the user community, but minimally, OMB will need to address procedures, standards, and scheduling for a GIILS. Based on authority derived from the Paperwork Reduction Act of 1980 and its reauthorization in 1986, OMB has adequate statutory basis for developing such policies for Executive branch agencies, but not for other branches of the government.

FIGURE 5-1: KEY AREAS OF CONSENSUS FOR DEVELOPING A GIILS

- The Government Should be Responsible for GIILS Development
- OMB Should Develop and Enforce Clear and Consistent GIILS Policy Guidelines but Should Not be Involved in the Actual Operation of a GIILS
- The System Must Respond to User Information Needs
- The GIILS Design and Operation Should be Based on Input from a Range of Stakeholders
- Standards for Operations and Performance Must Be Identified and Maintained
- The Agencies Should be the Locus of Responsibility and Control
- Agencies Should Have Incentives and Receive Rewards for Participating in a GIILS
- Any GIILS Should be Integrated into Agency IRM Functions
- Congress Must Provide Support For a GIILS
- Keep the GIILS Simple and Develop it Incrementally
- GIILS Should Provide Multiple Products in a Range of Formats

A number of agency representatives indicated that they would welcome policy guidance on the dissemination of government information. The development of a GIILS and policy for its implementation could assist a number of agencies in the resolution of a range of dissemination issues and help them fulfill agency missions.

A second policy role for OMB in this area is enforcement. After the development of dissemination and GIILS policy, it is important for OMB to ensure that those policies are being implemented, that agencies are complying with the various procedures and requirements, and that the GIILS is accomplishing its stated objectives.

There was also widespread agreement that OMB should not and cannot be involved in the actual operation of a GIILS. OMB has inadequate resources for, experience in, and knowledge about the design and day-to-day operation of such systems. Further, there currently exist a number of agencies that do have some experience and knowledge in the design and management of such systems, e.g., the Government Printing Office and the National Technical Information Service. But it was also pointed out that other, smaller agencies had successfully operated or had developed in-house inventory/locator systems. Some of these systems might serve as examples for a GIILS.

The System Must Respond to User Information Needs

The design of a GILS must identify and respond to a range of user information needs. Users, however, are not a homogenous group, and different target audiences may have different needs. While a number of user information needs were identified regarding government information, two of the most basic are:

- A single source of entry for identifying and obtaining government information resources
- Better awareness of the range of government information resources available to both government officials and the public.

Responding to these basic needs will greatly benefit users in both the public and government. Information resources that cannot be identified and accessed without a great deal of difficulty and are not described in a standardized way cannot be successfully consulted or managed.

User and producer needs change and any system must have organizational continuity such that the system can change as well. Ongoing and effective feedback mechanisms between users and system management must be built into the inventory/locator system. In short, any system requires periodic review and evaluation to ensure that objectives are being met, that user information needs are being resolved, and that the system contributes to overall agency effectiveness.

GILS Design and Operation Should be Based on Input from a Range of Stakeholders

In addition to the consideration of user information needs, the system should also incorporate views and suggestions from various user groups, including, but not limited to, the library community, public advocacy groups, Federal agencies, the private sector, professional associations, and OMB. While the system cannot be expected to meet all the objectives of these groups, it is essential that their views are heard and considered during system design, implementation, and evaluation.

Moreover, there was wide agreement that an advisory council or some other mechanism to provide regular and ongoing feedback to system managers would be essential. Such an advisory council should include a range of stakeholders, especially representatives from the private sector. There was general agreement that the basic system should be made available to the private sector for enhancements and value added features.

Standards for Operations and Performance Must Be Identified and Maintained

The success of the system will depend on the degree to which the various Federal agencies and offices are provided (minimally) with standardized procedures for:

- Determining which information to include in the inventories
- Utilizing cataloging rules (perhaps Anglo American Cataloging Rules—AACR2) for describing the information in machine-readable format
- Submitting the information in agreed-upon formats so that they all can be compiled easily and efficiently.

NIST, GPO, NTIS, NARA, LC, and perhaps others, should work closely with OMB and the various agencies to ensure that such standards are developed.

In addition to setting operational standards, there will also be a need to develop performance standards for system operations. Acceptable update lag times, system response time, and accuracy of contents are a few of the areas that must be addressed. Without clear system objectives and performance standards, the system cannot be evaluated effectively.

The Agencies Should be the Locus of Responsibility and Control

Individuals within the agencies are the people most knowledgeable about their own information resources. Thus, it is important that they retain control over that information and that agency information resources are not "removed" from the agency. More specifically, the agencies should have responsibilities for:

- Inventorying their information resources
- Selecting from these inventories the key or most important finding tools, catalogs, indexes, etc. for submission to a government-wide inventory
- Explaining and describing the information, or otherwise advising users about how best to use the information.

The GIILS would refer users to appropriate finding tools, indexes, catalogs, etc. at the agency level and provide information about whom to contact in that agency for additional information.

Agencies Should Have Incentives and Receive Rewards for Participating in a GIILS

A frequent concern raised throughout the interviews was that the agencies are unlikely to participate effectively in a GIILS unless they receive specific rewards and have incentives for such participation. One incentive for participation is that a GIILS could serve as a mechanism for an agency to meet the reporting requirements of:

- OMB Bulletin 89-15, inventory of information dissemination products and services
- National Audio-Visual Center inventory (36 C.F.R. Ch. XII)
- Government Printing Office for reporting publications (44 U.S.C. 1701-1722)
- General Services Administration to provide a directory of Federal information systems (31 U.S.C. 1113)
- Their enabling legislation regarding information management and dissemination.

Such consolidation of reporting requirements would be a powerful incentive for the agencies to participate in a GIILS.

Another incentive for participating in the GIILS is that a broader range of users would be made aware of information resources at that agency. This increased awareness would likely result in improved dissemination of information. A number of the agency representatives—especially program officers—were very concerned that their information resources were inadequately used by the public and other government officials. A GIILS that "pointed" more users to a broader range of agency available information resources could assist the agency in meeting statutory requirements. Moreover, agency representatives were eager to prove the importance of and demonstrate the demand for their information products and services. A GIILS could serve as an important tool for agencies to identify and reach audiences. Such a system could also "tally" demand for information services and products allowing the agencies to better assess and justify these services and products.

Other incentives are that a GIILS could reduce the time and resources needed to respond to information-related requests by increasing the effectiveness and accuracy of those responses and by assisting intermediaries outside the agency better exploit their information resources (and thus, increase demand). Some of the agency respondents noted that an in-house inventory of information resources might be the most effective and least onerous means for reducing paperwork and duplication of information products.

In addition, if the agencies recognized that an inventory would assist in accomplishing IRM objectives, they might be more willing to participate. Both OMB and GSA have a range of responsibilities for increasing the effectiveness of IRM across the government. The benefits discussed in this section and in Chapter 3, as well as others yet to be identified, could be explained in policy guidelines and educational programs and made explicit by OMB and GSA. Through education and training, the agencies can better understand how inventories of agency information can be translated into more effective IRM (Burk and Horton, 1988).

- Any GIILS Should be Integrated into Agency IRM Functions

Although the reauthorization of the Paperwork Reduction Act in 1986 specifically included the importance of dissemination of government information as part of Federal IRM, some agencies have been slow to operationalize this perspective. Currently, Federal IRM gives inadequate attention to the maintenance of inventories and to the dissemination of government information. Indeed, discussions of Federal IRM inadequately explain these functions (General Services Administration, 1987 and 1989a). The development of a GIILS is an excellent opportunity to encourage agency IRM officials to create or enhance information inventories both to:

- Better manage and control agency information resources
- Increase access to and dissemination of agency information resources.

OMB policy development for a GIILS should clearly link the GIILS to IRM functions and responsibilities. Such an approach may help to integrate the various information-related positions within the agency, i.e., library services, public affairs, publications, systems development, etc.

IRM policy guidelines, quite simply, could state that the creation of an inventory/locator system is a necessary function for successful IRM. IRM training and job descriptions could include attention to inventory development and dissemination. Top-down commitment to and an explanation of a GIILS as an IRM function is needed and, according to study participants, would greatly facilitate agency participation in a GIILS.

Congress Must Provide Support For a GIILS

While it appears that OMB has statutory authority for developing policy for the design and operation of an Executive branch GIILS, Congress should also be prepared to support a GIILS. Policy support already exists, to some degree, with language in the Paperwork Reduction Act of 1980 (and 1986 reauthorization), OMB Circular A-130, and S. 1742 and H.R. 3695. However, Congress may need to provide some direct appropriations to the agency that serves as the central compiler and disseminator of the inventory. The actual amount of those appropriations would depend on the specifications of the system, the information to be collected and compiled, and the techniques by which that information is disseminated.

Support also includes specifying statutory requirements and oversight mechanisms for all agencies in government to participate in a GIILS. If a GIILS is to be effective, information resources from all three branches of government should be included in the system. While a GIILS might begin with only Executive branch participation, its eventual inclusion of all government agencies should be attempted. In any case, formalizing GIILS objectives, requirements, procedures, and oversight mechanisms will help ensure the success of such a system.

Keep the GIILS Simple and Develop it Incrementally

As one interviewee commented, "the last thing we need is another complicated, massive, inoperable Federal information system." The GIILS should be designed to accomplish relatively specific and narrow objectives at first, and then build upon a successfully operating system to meet additional objectives in an evolutionary process. Trying to design the "perfect" system initially was seen as exceedingly difficult; an incremental approach would allow system designers and users to incorporate their experiences with the system into its on-going design.

There was also general agreement that, although an agency might wish to compile comprehensive inventories of all information resources in that particular agency, the information most needed for a GIILS is finding tool information. The type of information to be included in a GIILS would be indexes, listings, catalogs, directories, and key contact individuals, not actual information from the agencies. Thus, the GIILS would be a pointer system, i.e., it would "point" the user to the appropriate finding tool, database, or individual that could best respond to the information request.

GIILS Should Provide Multiple Products in a Range of Formats

Although it is envisioned that a basic product from a GIILS would be an online database, other products could be "spun-off" a GIILS. Such products might include customized listings and assessments of information resources, perhaps by topics. Private sector involvement in such spin-offs should be encouraged. Moreover, the information in the GIILS should be made available in various formats—printed indexes, online databases, electronic bulletin boards, CD-ROM, microforms, and perhaps others. A wide diversity of products and formats would enhance the accessibility and usefulness of a GIILS.

Summary

The factors described in this section provide a useful starting point for the design requirements of a GIILS. Specific system objectives, requirements, and operational procedures can, in part, be derived from these factors. There is considerable agreement across the various stakeholder groups that these factors are critical to the overall success of a GIILS. In the words of one interviewee, "to ignore these factors is to ensure the creation of an ineffectual and poorly constructed information inventory/locator system."

POSSIBLE APPROACHES FOR DEVELOPING A GIILS

During the course of this study, a number of existing techniques, systems, and approaches which might serve as useful models for developing a GIILS were identified. The items listed here are only examples and do not comprise a comprehensive listing of possible approaches for a GIILS. Each approach listed offers a number of interesting and useful ideas for a GIILS. Thus, they provide a good beginning point for the development of possible models for a GIILS.

Federal Information Resource Directories

The study team reviewed a number of information resource catalogs, indexes, and directories produced by various Federal agencies. In general, the purpose of these catalogs was to assist both agency officials and the public in identifying the range of information resources that were produced within the agency. The printed catalogs, indexes, and directories varied considerable in quality. The two examples discussed below seem to be well-designed and useful.

An essential question about such directories is continuity and the Government's commitment to ensuring their regular publication. One hopes, for example, that the recently released EPA Information Resource Directory will not be discontinued as was the Federal Information Sources and Systems (both titles discussed below). Thus, any information inventory/locator system may require a statutory or regulatory basis requiring its ongoing publication. The success of a GIILS may depend on such a commitment and the system's continuity. A "one-shot" GIILS will do little to improve access to and dissemination of government information.

EPA Information Resources Directory

The Environmental Protection Agency Information Resources Directory, Fall, 1989 (hereafter referred to as IRD) is issued by the Office of Information Resources Management (available through NTIS as PB90-132192rAA) and is a very good example of the types of finding tools that could be incorporated into a GIILS. The IRD is approximately 600 pages long and identifies and describes the following types of information resources:

- General Reference
- EPA Information Systems
- EPA Contacts
- Dockets, Hotlines, Bulletin Boards, and Clearinghouses
- EPA Libraries
- EPA Documents
- Federal Contacts (outside EPA)
- Interest Groups.

It also includes a list of acronyms, abbreviations, and a glossary.

The IRD is especially useful because it recognizes that a broad range of information resources, regardless of format, can be useful as finding tools to locate more specific information. It is possible, however, that not all the information contained in this directory would be needed for a GIILS. Despite some weaknesses, e.g., the lack of an index and inadequate description of information system contents, this directory deserves careful review as a possible model for an agency inventory of information resources.

Federal Information Sources and Systems

The Federal Information Sources and Systems (hereafter referred to as FISS) was last issued in 1984 by the General Accounting Office. The FISS was part of the Congressional Sourcebook Series and had as its objective "to facilitate identification, acquisition, and utilization of relevant and reliable information which is needed by Congress in carrying out its oversight and budget control responsibilities" (FISS, 1984, p. iii). More specifically, it was intended to meet Congressional mandates as given in 31 U.S.C. 1113(c)(1).

The directory provides entries for each "major information collection and/or information dissemination facility, such as, documentation center, information analysis center, research center, clearinghouse, special reference library, and information network, operated by or for the agency" (p. xi). The directory is organized by agency, and there are concise descriptive abstracts about the information system being listed for each agency. An excellent subject index follows the citation portion of the directory. The directory totals 1041 pages; the citation section is 600 pages, and the remainder is the subject index.

The FISS is an excellent example of a government-wide inventory of information resources. The individual entries provide an excellent overview of the system being described and serve as a pointer to where and how to obtain additional information. The most outstanding feature of the directory, however, is the 400-page subject index. For example, the index allows the user to identify 15 systems, located in a number of different agencies, that deal with the topic of foreign aid.

State of New Jersey InfoFind System

InfoFind is an online catalog of and directory to information sources produced by the State of New Jersey. It serves to:

- Inventory the repositories of information throughout the state
- Provide an information locator enabling people to find the information they need
- Provide a set of data—information about information—which can be analyzed to identify the properties and characteristics of information files in state agencies.

No actual data are contained in InfoFind; rather, it contains information about information and points the user to the proper contact person.

This particular system deserves review as a possible model for a GIILS because it links improving identification of and access to government information with a range of IRM objectives: "InfoFind has opened up many possibilities for data sharing, for reducing data collection burdens on citizens, and for reducing state costs in collecting and storing information" (Stone, 1988, p. 44). The InfoFind system is an operational attempt to accomplish objectives similar to those that a GIILS might have. Additional information describing InfoFind can be found in Stone (1988).

InfoMapper

Burk and Horton (1988) introduced the notion of an "InfoMap" as a means to inventory corporate information resources. An InfoMap is ("What is an InfoMap Anyway?" 1990, p. 4):

An inventory of an organization's many and varied information resources.... Information resources can be libraries, data bases, online retrieval systems, manual files, software, hardware, printing and graphics services, and even persons who have a special knowledge or skill valued highly by the organization. This inventory is more than a list, however—it is a compilation of information about the resources.

A software program/template has been developed, based on d-Base IV, to allow an organization to identify, enter, code, and describe those information resources. The InfoMap approach was field tested in a government agency. In addition, Syracuse University, School of Information Studies served as a test-site for a Beta version of the software.

In our assessment of the Beta version of InfoMapper, we stated that the product is a tool whose "time has come" and determined that those organizations with the resources and ability to implement the product would have the means to significantly improve overall IRM. A number of concerns and issues regarding Infomapper include:

- The significant level of intellectual and policy effort, and resources, needed to input the data
- The lack of controlled vocabulary in some of the fields
- An inadequate level of detail in the documentation.

Despite these concerns (which are likely to be addressed in the development of the commercial product), InfoMapper has potential as a model for the software needed by Federal agencies to develop an information inventory/locator system of information resources [additional information about Info Mapper can be obtained from Information Management Press, PO Box 19166, Washington DC 20036].

NTIS FEDLINE

The proposed American Technology Preeminence Act (H.R. 4329) contains language directing the National Technical Information Service (NTIS) to conduct a feasibility study for establishing FEDLINE. FEDLINE would (p. 50):

Serve as a comprehensive inventory and authoritative register of information products and services disseminated by the Federal Government and assist agencies and the public in locating Federal Government information.

At the conclusion of the feasibility study, a report would be submitted to the House, Committee on Science, Space, and Technology. Indeed, the mandate in H.R. 4329 is similar to the objectives, policy issues, and research objectives addressed in the study reported here.

Although the specifics of operationalizing FEDLINE are unclear, NTIS currently has a task force that has been considering the development of a GILS. Related to this effort, NTIS has proposed an Executive Order to implement such a system (NTIS, 1990a). This approach to a GILS stresses (NTIS, 1990b, p. 2):

- Mandatory registration, not mandatory input of information (an approach similar to the pointer concept)
- Scientific, technical, and business-related information
- The establishment of a supporting network of federal officials
- Standardized registration.

The proposed Executive Order would have three sections: (1) Transfer of Federal Scientific, Technical, and Business Related Information to NTIS, (2) Establishing the NTIS Bibliographic and FEDRIP Databases as the facilitation tools for Scientific, Technical and Business-Related Information, and (3) Establishing a Network of Federal Information Disseminators.

One cause of concern, however, is the emphasis placed on agency STI rather than on a range of government-wide information resources. Exactly how the agencies would supply information to NTIS (as a central compiling source) and how "key officials" within the agency would be responsible for submitting the information is unclear. As noted in Chapter 3, other causes for concern are NTIS' requirement to recover costs from its products and services and its relationship with the private sector regarding production and dissemination activities. A GIILS should not be dependent on any one sector for effective dissemination. Nonetheless, the proposed approach offers a number of ideas and strategies that may be of use in the design of a GIILS.

Federal Information Centers

The General Services Administration (GSA) currently exercises oversight for the Federal Information Centers (FICs), established under PL 95-491. Robinson summarizes the purpose of the FICs as (1988, pp. 10-11):

Clearinghouses for questions directed to the government. The federal government offers such a range of programs and services that people are sometimes confused about where to turn. FICs can help identify which of hundreds of government offices to contact with a question, avoiding a merry-go-round of referrals. Calling or writing a Federal Information Center results in either a direct answer or referral to a government expert.

The FICs handle about 2 million inquiries per year at a cost of \$4 million annually. As a result of an A-76 study, however, it was decided that the private sector should have an opportunity to bid on operating the system. As of July, 1990, Biospherics, Inc., operates the FICs.

The FIC system provides information delivery activities to 72 metropolitan areas in the United States. Some of the responsibilities of the contractor for operating the FICs include (GSA, 1989b):

- Answering questions about Government programs, policies, information sources, and agencies
- Performing data base maintenance and lookup functions, and software and hardware maintenance
- Preparing statistical, narrative, and other reports.

Not all of the study participants were aware of the FICs, their activities, and their role in the dissemination of government information. Much of what the FICs are intended to accomplish, however, is similar to possible objectives for a GIILS. The FICs concentrate primarily on providing information directly to the public, using a range of information resources. This operation deserves additional attention as a potential access and dissemination vehicle for a GIILS.

MARC Bibliographic Database

GPO and the Library of Congress currently create machine-readable records for millions of government publications using highly-developed international standards for organizing, formatting, inputting, and accessing bibliographic data. This set of standards allows sharing and integration of

bibliographic records across different systems. These records are distributed (among other means) through OCLC, the world's largest bibliographic utility, and are thereby available, free of charge, to patrons in most U.S. libraries.

An integrated machine-readable cataloging (MARC) format is currently under development at the Library of Congress that will allow one standard format for all kinds of information resources, whether that resource is an article, a book, or a collection of items, and regardless of its physical format. GIILS could tap into this existing system by creating MARC records for all government information finding tools. This system would minimize agency burden and the need to develop new systems and standards and would ensure wide public access and dissemination.

One Possible Form of a GIILS

This section offers a proposed approach for a GIILS. It is intended only as a possible vision for what a GIILS might be. Further, it assumes that the existing FILS should be enhanced and improved, but not be a part of the GIILS because:

- Information collection requests have limited usefulness for access to government information and should not be confused with actual information resources content in a GIILS
- The history and development of FILS are fraught with problems and bad feelings; from a marketing perspective, the GIILS needs to be disassociated from FILS
- The existing FILS system is mandated by Congress and one could argue that statutory revisions would be necessary to modify it to include GIILS responsibilities
- The existing system is poorly designed and has very narrow objectives; adding GIILS responsibilities to this system is likely only to injure the effectiveness of the GIILS aspects of the system.

While it is possible that an entirely new system might be developed to incorporate both FILS and GIILS objectives, the preference of the study team is for a second system intended specifically to improve access to and dissemination of public government information and to enhance agencies' abilities to manage their information resources. An overview of one possible model for such a system follows.

General Description

This approach would depend on OMB-OIRA's issuance of policy directing agencies and requesting Congress and the Judicial branch to establish a machine-readable database that inventories key finding tools to information resources and holdings (regardless of format) produced at particular agencies. These finding tools might include:

- Inventories
- Directories
- Handbooks
- Catalogs
- Indexes
- Listings of information systems and databases
- Clearinghouses
- Key offices or individuals.

This policy guidance could be an extension/modification of Circulars A-3 and A-130.

The policy guidance would detail the specific types of finding aids to be included, specify how these items are to be described, specify the manner in which they would be submitted, prescribe a standardized reporting format, require that the inventory be updated regularly (e.g., every month), and direct the agency to submit this machine-readable datafile to a particular central compiling source such as NTIS or GPO. A key official in each agency, possibly the designated information resources manager, would have responsibility for the submissions. After compilation, multiple dissemination formats and techniques would be done by the central compiling agency.

Purpose and Audience

The general purpose of the GIILS would be to improve the management and dissemination of government information. More specifically, its objectives would be to:

- Create a comprehensive agency-based inventory of the various information resource available from individual agencies
- Establish, from that comprehensive agency-based inventory, an information inventory/locator system of significant finding tools in a standardized, machine-readable format
- Make the information inventory/locator system publicly available in a range of formats using a number of dissemination techniques.

The primary audiences for the GIILS would be (1) Federal government officials, to better manage agency-based information and identify other information government-wide, (2) information intermediaries and brokers, who would use it to provide information to specific target groups, and (3) the general public, who could access the system directly.

Operation

Agencies would produce a comprehensive inventory of information resources within their particular agency. This inventory could be done in a variety of ways and contain a range of information resources that best meet agency IRM needs and responsibilities. From this inventory, the agencies would be required to submit, in a standardized and machine-readable format, significant finding tools (such as those outlined above) available through their agency. This submission would go to a central compiling source.

The central compiling source would integrate the submissions from agencies into one database. Entries in the database would include both the bibliographic information for the finding tool and a description or abstract of that finding tool. The compiled inventory/locator system would be organized by agency, and, within agency, by type of finding tool. The compiling agency would provide a subject, title, and author index to the entire inventory. This central compiling source would receive Congressional appropriations to compile, produce, and disseminate the inventory.

The government-wide inventory/locator would be available in a range of electronic formats and in paper copy. CD-ROM disks of the database also could be sold/distributed through the GPO or the NTIS. Other programs, such as the Depository Library Program (operated by the GPO), and the Federal Information Centers (operated by GSA), could use the database in providing information services to the public. Value-added services and products from this original database could be developed and provided by interested private sector firms. OMB and selected Congressional oversight agencies would have specific responsibilities to enforce GIILS policy guidelines and procedures.

The development of the government-wide inventory/locator system could be accomplished in phases. Phase I would be market analysis and cost-benefit analysis, policy development, system design, and project planning; Phase II would be pilot testing; Phase III would be implementation; and Phase IV would be evaluation and fine-tuning. Development and implementation of the government-wide information inventory/locator system, from policy development to actual system operation, might take 2-3 years.

Benefits

Such a government-wide information inventory/locator system would have benefits to participating government agencies, to the public, and to OMB:

- Government officials and the public would have access to a single database of the most important finding tools to public information for the entire government
- OMB would provide policy guidance and enforcement and would not be responsible for the day-to-day procedures of operating and managing the inventory
- The actual information, and the task of describing that information, would remain at the agency level where knowledgeable individuals can provide additional detail about the various finding tools and information as appropriate
- Information resource managers at the agency level would have a comprehensive inventory of public information resources and finding tools to help them better manage information within that particular agency and to meet various statutory and regulatory requirements
- The government-wide inventory/locator system would assist OMB in meeting responsibilities given it under the Paperwork Reduction Action of 1980 and its reauthorization in 1986.

Perhaps most importantly, the development of a GIILS would be a statement of Federal commitment to the principle that access to and dissemination of government information in the electronic age will be enhanced and not reduced.

Summary

This section identified a number of existing models and approaches that might be useful in the design of a GIILS. Detailed analysis and assessment of these approaches for a GIILS have not been done to date. Nonetheless, drawing on these and other approaches, the study team proposed one possible model as a basis for designing a GIILS. We offer this approach primarily as a vision and beginning point for further discussion. Clearly, many additional issues and procedural matters must be addressed before one particular approach could be proposed as the "best" approach for a GIILS.

FURTHER RESEARCH

As suggested in the previous section, many inventory/locator systems have been created that have potential applications for a GIILS. The study reported here has made a "first cut" at identifying some of those systems, developing criteria as a basis for designing a GIILS, and offering a possible approach to facilitate discussion. Before the actual design, or policy basis, for a GIILS can be formulated, however, a number of key topics require additional investigation. Some of the most important research topics requiring investigation are briefly described below.

Complete Policy Analysis of Inventory/Locator System Policy Instruments

Appendix A provides a list of the policy instruments related to inventory/locator systems that were analyzed for this study. For purposes of organization, these policy instruments are categorized as government-wide, agency-specific, OMB regulations, or proposed. A significant effort was spent on this analysis, resulting in a 150 page draft document. This draft, however, is not comprehensive nor is it complete. Throughout the study, additional policy instruments were identified as a result of the interviews, references in the literature, and serendipity.

Thus, the analysis of the instruments listed in Appendix A and summarized in Chapter 2 is a useful beginning to conduct a comprehensive assessment of policy instruments related to Federal information inventory/locator systems. Before policy is developed for a GIILS, a comprehensive assessment of existing instruments should be completed. Such an assessment might best be accomplished by the Congressional Research Service or a similar Federal agency.

Examine Existing Agency Inventory/Locator Systems

An important result of this study was the identification of a number of inventory/locator systems that currently exist within the Federal government. Agency-specific print products include, for example, the EPA Information Resources Directory, the HHS Data Inventory, and the Bureau of the Census Catalog. Electronic inventory/locator systems appear to be in place in the Department of the Navy, the Federal Trade Commission, and the Department of Veteran Affairs, to name only a few. Additional print and electronic inventory/locator systems were mentioned in responses to the notice that appeared in the Federal Register and are summarized in Chapter 4.

Additional study is needed to assess these existing inventory/locator systems and determine the:

- Policy or statutory basis for each system
- Types of information resources each system inventories and the degree to which it includes key finding tools rather than actual information resources
- Hardware and software configurations upon which the inventory is based
- Content, format, and structure of the "entry" for each type of information resource
- Procedures used for collecting, reviewing, and entering information
- Relative compatibility among these various systems
- Formats and techniques used to disseminate information in the system.

Identification of the various existing inventory/locator systems and answers to these questions would provide important data for how to develop policy and procedures for a GIILS. This effort would also help leverage the considerable investment agencies and other governmental entities have made in existing systems.

Conduct Market Research on User Information Needs for a GIILS

One of the most important areas that requires additional research is the assessment of user information needs across various potential GIILS markets. Such research is essential to better determine:

- What are the primary markets for a GIILS, and what are the salient characteristics of the individuals within those markets?

- What types of government finding tools would be most useful for particular market segments?
- What are the most important government information needs of various market segments, and how can a GIILS best respond to those needs?
- What are the preferred techniques for accessing an inventory/locator system?
- What information products and services should be developed to enhance the effectiveness of the GIILS?
- To what degree are users willing to pay for accessing a GIILS or to receive specific types of products?

Addressing these and other similar questions is essential if the GIILS is to be "user friendly," meet the needs of its users, and succeed in the information marketplace.

Conducting such research will entail a careful research design that identifies the various market segments and collects data from the individuals within those segments. Moreover, within those segments, the design must take into consideration a range of users, from those with no experience and knowledge of government information resources to those with considerable experience. The segments should include those who are technologically naive as well as those who are technologically sophisticated. Such research is essential not only to identify market needs but to estimate potential demand for particular types of products and services.

Analyze Selected Government-Wide Indexes/Catalogs

The purpose of such an analysis is to critically examine a selection of hardcopy and electronic indexes/catalogs to government publications, information, information services, and information products to determine possible content, format, structure, and approaches for a GIILS. The assessment of these tools should include a review of:

- Objectives of the tool
- Coverage of material (general/specific)
- Format: online, hardcopy, microform, etc.
- Arrangement of entries: sections, thematic, alphabetical, other
- Degree to which it "points" or refers to other sources/tools; and the specific items/individuals that it points to
- Bibliographic information, including standards used in describing the information resources
- Type of government information, services, and products included in the tool
- Inclusion or exclusion of abstracts and type of abstract used: summary, analytical, descriptive, etc.
- Use of a thesaurus or controlled vocabulary
- Instructions in the use of the tool
- Indexes
- Other criteria as appropriate.

If the tool is an online system, review of the software, user's manual, training support, costs and fees, and format availability of the tool might also be considered.

The actual tools to be examined and analyzed should include both government and private sector tools and tools in hard copy, CD-ROM, microform, and online. Such tools might include the Congressional Indexing Service's CIS and ASI Index, The GPO's Monthly Catalog, Federal Statistical Data Bases (Oryx Press), FedFind (ICUC Press), the New Jersey InfoFind (Stone, 1988), Information U.S.A. (Viking Press), Index to U.S. Government Periodicals (Infodata International), Listing of

Agency Information Disseminators, Products, and Services and the NTIS bibliographic database (NTIS), Federal Information Sources and Systems (GSA, now out of print), or any of a number of such tools listed in U.S. Government Publications Catalogs (Zink, Special Libraries Association, 1988). The titles listed here are representative only—clearly there are others.

The results from this analysis should (1) identify effective approaches found in other tools (referring to them directly) that might be considered for inclusion in a GIILS, (2) propose specific content and organizational structures that might be considered as a model for a GIILS, and (3) make specific recommendations about what might be feasible and appropriate for the content and arrangement of typical entry in a government-wide information inventory/locator system.

Determine Standards for a GIILS

Central to the success of any GIILS is the degree to which there are clear and accepted standards for the system. Investigation into the standards currently being used by the various agencies for determining which types of information resources would be reported, for listing and describing information resources, for entering those resources in machine-readable format, and for making those inventories available are only a few of the areas that will require investigation.

Research is needed first to identify and describe the standards that are currently being used, or not used, at an agency level. Then, an assessment of these standards should be made as to their strengths, weaknesses, and gaps. Next, a review of existing standards in these areas must be conducted to determine the degree to which the GIILS could be based on these standards (e.g., AACR2, MARC format, NIST standards, American National Standards Institute (ANSI) standards, etc.). Finally, recommendations should be made about the specific standards to be used in each of the areas described above.

Investigate Costs Related to the Implementation of a GIILS

Once research is done in the above areas, it should be possible to develop a set of options or models for a GIILS. These options could be based on a low, moderate, or high level of effort and commitment to a GIILS. For each option, cost estimates (minimally including staff time, equipment, and supplies) on the following would be needed:

- Development of the policy and procedures for a GIILS
- Agency preparation of a comprehensive inventory and submission of the findings tool inventory
- Compilation, organization, indexing, and dissemination of the GIILS through a central source
- Developing and implementing training modules for operators of the system
- Operating the system in response to agency and public requests for information
- Ongoing oversight and enforcement of the policies related to a GIILS
- Evaluation of the system.

Advice on how best to conduct these cost studies might be obtained from the GAO or other agencies. Review of costs for the development of similar systems could assist in estimating costs for a GIILS.

Producing cost estimates for a possible GIILS was beyond the scope of this study, but such estimates are specifically requested in the feasibility study of FEDLINE to be conducted by NTIS that is outlined in H.R. 4329. Such cost estimates should be based on carefully constructed models of a GIILS with differing levels of efforts and should include results from the other research topics described in this

section. Simply proposing cost estimates for one or more GIILS without conducting the research outlined in this section will likely result in the development of an ineffective GIILS.

Summary

This section has identified six key areas where additional research and investigation are needed before proceeding with the design of a GIILS. The temptation might exist for an agency or a private sector firm to "jump in" immediately in the design and implementation of a GIILS. The results from this study, however, suggest that while there is an evolving consensus of what a GIILS should be and how it should be operated, numerous areas require additional investigation. Those areas, and specific research questions to be addressed in those areas, are described above.

OPPORTUNITIES AND OPTIONS FOR OMB

As a result of this study, a number of opportunities and options present themselves to OMB. The key opportunity is to assume a leadership stance in the design and development of a GIILS. Currently, there is a leadership void within the government about what exactly should be done to provide improved access to and dissemination of government information. OMB's efforts to maintain momentum and interest in the design and development of a GIILS is an important step toward the eventual design and implementation of a GIILS.

Currently, OMB-OIRA is the key player in how the design of a GIILS might occur. In this role, OMB-OIRA may wish to consider a number of possible options and strategies. These options and strategies are based on the assumption that OMB-OIRA will have to deal with GIILS-related issues in the future, and that taking a leadership stance now might save a great deal of effort (among all the interested stakeholders) later. A brief overview of these "next steps" is provided in the remainder of this section.

Determine Appropriate Level of Involvement in GIILS Development

OMB-OIRA will need to consider what level of involvement and what level of effort is appropriate to commit to the design and development of a GIILS. Factors affecting this determination go beyond the commitment of resources to completing such a project. Other concerns include:

- The degree to which commitment to a GIILS complements or enhances administration policy
- The degree to which commitment to a GIILS effectively responds to Congressional mandates
- How involvement in the design and implementation of a GIILS assists OMB-OIRA accomplish other agency missions and objectives, e.g., enhancement of IRM government-wide.

The earlier this determination is made, the sooner other stakeholders interested in a GIILS can respond and develop their strategies.

Conduct or Encourage Other Agencies to Conduct Further Research

An important role and strategy for OMB would be to continue the research efforts initiated with this study. As discussed in the previous section, there are at least six key areas of research that require additional attention. In effect, these areas complement each other and should be investigated in

concert with one another. However, it is possible that the various research efforts could be orchestrated across various agencies, within the private sector, or other research-conducting organizations. Indeed, an appropriate and important next step for OMB is to maintain the momentum developed, in part, by this study and build on it by making certain that such research is done.

Propose Dissemination and GIILS Policy Alternatives

Another option for OMB is to move forward by proposing possible policy alternatives and guidelines to improve the dissemination of government information. Policy proposals might address:

- The types of government information appropriate for public dissemination
- Guidelines to determine what types of dissemination mechanisms are appropriate in particular types of situations
- Methods for costing dissemination activities and how, exactly, costs are to be computed
- Linking dissemination activities to IRM functions
- Coordinating agency dissemination activities government-wide.

Since the appearance of "The Second Advance Notice of Further Policy Development on Dissemination of Information" (OMB, 1989), there has been an expectation that OMB would issue additional thoughts on policy related to the dissemination of government information.

Findings from this study suggest that a number of the Federal agencies would welcome the opportunity to respond to and provide input on proposed policy initiatives in this area. The agencies, however, are skeptical that effective policy proposals in this area can be made without additional review by the agencies and other stakeholders. Thus, OMB might propose a range of policy initiatives and alternatives for discussion by the agencies and information community, through open meetings, discussion sessions, or an advisory group (see below) that deal specifically with information dissemination and GIILS.

Establish a GIILS Advisory Group

Many of the interviewees and many of the Federal Register respondents expressed their pleasure at being asked what they thought about the design and development of a GIILS. Moreover, the process of obtaining these views was important both for data collection and as a means of building consensus about what a GIILS should be and how it should operate. A GIILS advisory group could accomplish a number of important objectives:

- Provide a formalized mechanism to obtain input on policy initiatives and ideas
- Offer suggestions and ideas for the design and development of a GIILS
- Be a conduit to communicate developments on a GIILS to the larger community of stakeholders interested in this project
- Provide a forum where stakeholders can debate and explore the implications of key issues and concerns related to a GIILS
- Assist OMB in achieving consensus on how to deal with various issues and concerns regarding a GIILS.

Establishment of such a group would also demonstrate OMB's interest in and commitment to a GIILS.

MOVING FORWARD

OMB-OIRA has a splendid opportunity for asserting leadership in key policy areas, such as information management, dissemination, and a GIILS, that have been poorly attended to in the past. There is much interest in the design and development of some form of a GIILS by a range of individuals representing a number of different stakeholder groups. Most recently, at an institute on electronic records sponsored by the National Association of Government Archives and Records Administrators, the following recommendation was made (June, 1990):

An information locator system/public records management system should be developed and available online and in other forms to serve effectively at least the following purposes:

- To provide information about major Federal information systems sufficient for other Federal agencies, state and local governments, the private sector and the public to know of the existence and understand the purpose and contents of these major systems. Information systems having a substantial impact on state or local government should be deemed major systems.
- To provide basic descriptions of other Federal information systems, these descriptions to be derived from routine review of agency disposition requests as required by laws regarding archives and records management.

This and other comments noted throughout this report indicate that there is much interest in a GIILS. Indeed, a significant amount of interest and momentum has been generated simply as a result of this study.

OMB's next steps need to concentrate on formulating policy initiatives for review and discussion, conducting additional research, developing a long-range plan for the development of a GIILS, and continuing to build consensus among the stakeholders interested in a GIILS. OMB and others interested in the development of GIILS should avoid the temptation of designing a system out of context of the criteria proposed in this chapter and without conducting additional research.

Developing a GIILS has the potential to be one of the most important Federal information policy initiatives of the 1990s. Indeed, implementing a GIILS is essential if the vast information resources of the government are to be successfully identified, accessed, and used by government officials and the public alike. The opportunity and the challenge of designing such a system will require leadership, resources, commitment, careful planning, and involvement by a range of stakeholders. In each of these areas, OMB-OIRA can make an important contribution to help realize a successful and effective government-wide information inventory/locator system.

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APPENDIX A

Selected Policy Instruments Related to Information Inventory Systems

The fifty-one policy instruments listed below were subject to an extensive analysis, the results of which are summarized in Chapter 2. Where the policy instrument analyzed is a particular statute, the statute's common name is followed by its public law number and the location in the United States Code where it is codified. If the unit of analysis is a section of the United States Code, its title is followed by the appropriate subsection name(s), then by the citation to the U.S.C. Similarly, any analyzed section of the Code of Federal Regulations is identified by title and appropriate subheading(s), followed by the citation to the C.F.R. Executive Orders, Bulletins, Memoranda, and Circulars are identified by title, while proposed legislation is identified by title and House or Senate bill number.

The instruments are in four basic categories:

- Government-wide statutes and regulations
- OMB circulars, bulletins, memoranda, and regulations
- Proposed instruments
- Agency-specific statutes.

In addition, the typology described in Chapter 2 was applied to the information systems mandated by the policy instruments. More than one category is listed if the system has characteristics of more than one category. The categories listed below and their equivalents from Chapter 2 are:

Clearinghouse = Clearinghouse
Referral Service = Information Referral Service
Control System = Data Collection Control System
BFS System = Bibliographic, Factual, Statistical System
Other = Other.

A. Government-Wide Statutes and Regulations

Freedom of Information Act, P.L. 93-502, 5 U.S.C. 552 [Other]

Privacy Act of 1974, P.L. 93-579, 5 U.S.C. 552a [Other]

Regulatory Flexibility Act, P.L. 96-354, 5 U.S.C. 601-612 [Control System]

Business and Industry - Technological, Scientific, and Engineering Information, P.L. 81-776, 15 U.S.C. 1151-1157, Chapter 23 [Clearinghouse]

Money and Finance; Program Information, 31 U.S.C. 6101-6105 [BFS System]

Federal Information Centers Act, P.L. 95-491, 40 U.S.C. 760 [Referral Service]

Appendix A (Continued)

Public Printing and Documents; Distribution and Sale of Public Documents, 44 U.S.C. 1701-1722 [BFS System]

Paperwork Reduction Act, P.L. 96-511, 44 U.S.C. 3501-3520 [Control System; Other]

Computer Security Act of 1987, P.L. 100-235, 40 U.S.C. 759 [Control System]

Computer Matching and Privacy Protection Act of 1988, P.L. 100-503, 5 U.S.C. 552a (o-v) [Control System; BFS System]

Executive Order 12291, "Federal Regulation" [Control System]

Parks, Forests, and Public Property; National Archives and Records Administration; Records Management, 36 C.F.R. XII, B [Clearinghouse; Control System]

B. Office of Management and Budget Circulars, Bulletins, Memoranda, and Regulations

Circulars

Circular A-3 (Revised), "Government Publications" [Control System]

Circular A-127, "Financial Management Systems" [Control System]

Circular A-130, "Management of Federal Information Resources" [Control System]

Circular A-132, "Federal Productivity and Quality Improvement In Service Delivery" [Control System]

Bulletins

Bulletin 87-14, "Report and Inventory of Government Information Products and Services" [Control System]

Bulletin 88-10, "Report on Government Information Dissemination Products and Services" [Control System]

Bulletin 89-15, "Report on Obligations for Government Information Dissemination Products and Services" [Control System]

Bulletin 89-17, "Federal Information Systems and Technology Planning" [Control System]

Bulletin 89-18, "Fiscal Year 1990 Information Collection Budget Request" [Control System]

Bulletin 90-03, "Regulatory Program of the United States Government and Unified Agenda of Federal Regulations for April 1990" [Control System]

Appendix A (Continued)

Memorandum

M-81-14, "Federal Information Centers" [Other]

Regulations

Administrative Personnel; Office of Management and Budget; Controlling Paperwork Burdens on the Public, 5 C.F.R. III, 132.1-1320.9 [Other]

C. PROPOSED INSTRUMENTS

Paperwork Reduction and Federal Information Act of 1990, H.R. 3695 [Control System]

Federal Information Resources Management Act of 1989, S. 1742 [Control System]

American Technology Preeminence Act, H.R. 4329 [BFS System]

Proposal for an Executive Order, "Facilitating Access to Scientific, Technical, and Business-Related Information" [NTIS] [BFS System]

D. AGENCY-SPECIFIC STATUTES

Banks and Banking; National Institute of Building Sciences, 12 U.S.C. 1701j-2 [Clearinghouse]

Banks and Banking; Home Mortgage Disclosure, 12 U.S.C. 2801-2811, Chapter 29 [BFS System]

Census, 13 U.S.C. [BFS System]

Commerce and Trade; National Trade Data Bank, 15 U.S.C. 4901-4913, Chapter 75 [BFS System]

Copyrights; Copyright Office, 17 U.S.C. 705-710, Chapter 7 [BFS System]

Food and Drugs; Drug Abuse Prevention and Control; Control and Enforcement, 21 U.S.C. 873, Chapter 13, Subchapter I [BFS System]

Labor; Bureau of Labor Statistics, 29 U.S.C. 1-9b, Chapter 1 [BFS System]

Mineral Lands and Mining; Exploratory Program for Evaluation of Known Recoverable Coal Resources, 30 U.S.C. 208-1 [BFS System]

Mineral Lands and Mining; Grants to States, 30 U.S.C. 1295 [BFS System]

Money and Finance; Congressional Information, 31 U.S.C. 1113 [Referral Service; BFS System]

Public Health and Welfare; Public Health Service; National Research Institutes, 42 U.S.C. 285-285a-5, Chapter 6A, Subchapter III [Referral Service]

Appendix A (Continued)

Public Health and Welfare; National Library of Medicine, 42 U.S.C. 286 [Clearinghouse]

Public Health and Welfare; Public Health Service; Research with Respect to Acquired Immune Deficiency Syndrome; Information Services, 42 U.S.C. 300c-17, Chapter 6A [Referral Service]

Public Health and Welfare; National Space Program, 42 U.S.C. 2451-2484, Chapter 26 [Other]

Public Health and Welfare; Juvenile Justice and Delinquency Prevention; Missing Children, 42 U.S.C. 5771-5778, Chapter 72, Subchapter IV [Clearinghouse]

Public Health and Welfare; Department of Energy; Renewable Energy Initiatives, 42 U.S.C. 7371-7373, Chapter 84, Subchapter XII [Other]

Public Lands; Publications and Reports, Distribution of Maps and Atlases, Copies, Sale of Transfers or Copies of Data, and Production and Sale of Copies, 43 U.S.C. 41-45 [Other]

Public Printing and Documents; Geological Survey, 44 U.S.C. 1318-1320 [Other]

Department of Commerce – Special Studies and Work, P.L. 91-412, 15 U.S.C. [Referral Service]

Federal Energy Administration Act of 1974, P.L. 93-275, 15 U.S.C. 761 [Clearinghouse]

Energy Supply and Environmental Coordination Act of 1974, P.L. 93-319, 42 U.S.C. 6299 [Clearinghouse]

Energy Conservation and Production Act, P.L. 94-385, 42 U.S.C. 6801 et seq. [Clearinghouse]

Department of Energy Organization Act, P.L. 95-91, 3 U.S.C. 19 et seq. [Clearinghouse]

OFFICE OF MANAGEMENT AND BUDGET

Request for Comment on Study of Federal Information Inventory and Locator Systems

AGENCY: Office of Management and Budget.

ACTION: Notice.

SUMMARY: The Office of Management and Budget requests public comment for a research study entitled "Federal Information Inventory and Locator Systems: Policy Review and Recommendations."

DATES: Comments from the public should be submitted no later than May 21, 1990.

ADDRESSES: Comments should be addressed to: J. Timothy Sprehe, Office of Information and Regulatory Affairs, Room 3235 New Executive Office Building, Office of Management and Budget, Washington, DC 20503. Telephone: (202) 395-4814.

FOR FURTHER INFORMATION CONTACT: Professor Charles R. McClure, School of Information Studies, Room 4-218 Center for Science and Technology, Syracuse University, Syracuse, New York 13244-4100. Telephone: (315) 443-2911.

SUPPLEMENTARY INFORMATION: The Office of Management and Budget (OMB) requests public comment concerning government information inventory and locator systems. Comments will contribute to a six-month research study, presently in progress, entitled "Federal Information Inventory and Locator Systems: Policy Review and Recommendations." The study is scheduled for completion by June 30, 1990.

In recent years a number of statutes and regulations have been adopted that require various Federal agencies to maintain inventory systems or other means of locating various types of government information, products, and services. Examples include the Federal Information Locator System (FILS), the Unified Agenda of Federal Regulations, inventories of major information systems, and inventories required in the Computer Security Act and the Computer Matching and Privacy Protection Act. However, the purpose, requirements, and operation of these efforts, when taken as a whole, are confusing and ambiguous.

Further, there has been considerable discussion that the concept of FILS, as mandated in the Paperwork Reduction Act (44 U.S.C. chapter 35) is too narrow

in scope and inadequately addresses issues related to public access to and dissemination of government information. The study will explore the notion of a Federal inventory/locator system that is broader in context than FILS and could be approached on a government-wide basis with the aims of: (1) Assisting agencies to better manage their information resources, and (2) improving public access to and dissemination of government information.

Given this context, the study will carefully review the existing policy system regarding "information inventory/locator systems"; clarify the concepts behind such systems; assess the objectives and uses for such systems; and offer recommendations for how such systems can best meet the needs of both Federal agencies and the general public.

The study's purpose is to explore policy and system options and make recommendations related to an information locator/inventory policy system for public government information. It will investigate key concepts, requirements, and current efforts to provide inventory/locator systems.

To assist in accomplishing the study's purpose, OMB solicits public comment concerning the following questions:

1. Is it desirable and/or feasible to establish a Federal inventory/locator system for public government information? How might an information inventory/locator system for public government information be defined, and what objectives should the system accomplish?

2. How might an inventory/locator system for public government information be configured? What data should such a system include: Information collection requests, information products and services, databases, information sources, or some combination of the above? How might the system best be administered?

3. Would it be desirable to standardize information elements in inventory/locator systems maintained by Federal agencies so that agency systems could be collected into a government-wide inventory?

4. What government information inventory/locator systems exist currently? How might they be improved to best meet the needs of both the government and the public?

5. To what degree should an inventory/locator system be considered as part of, or linked to, Federal information resources management activities?

6. How well do existing statutes and regulations provide guidance and direction to Federal agencies in maintaining inventory/locator systems? What specific statutes and regulations provide such guidance? Should steps be taken to revise these statutes and regulations?

7. What are appropriate roles and relationships for OMB, other Federal agencies, the private sector, the library and information science community, and other groups in the development, design, and operation of an information inventory/locator system for public government information?

8. How can OMB encourage Federal agencies to maintain better government information inventory/locator systems as part of: (1) Agencies' information resources management activities and (2) to improve access to public government information?

The study is sponsored by the Regulatory Information Service Center, General Services Administration, and co-sponsored by OMB's Office of Information and Regulatory Affairs. The Regulatory Information Service Center assists OMB in operating several information systems that track the status of, and provide public information on, the status of regulations and information collections. The principal investigator for the study is Professor Charles R. McClure, Syracuse University, Syracuse, New York. Ms. Ann Bishop, Mr. Philip Doty, and Ms. Pierette Bergeron also serve on the study team. Additional information about the study can be obtained from members of the study team at the address listed above.

James B. MacRae, Jr.,
Acting Administrator and Deputy
Administrator, Office of Information and
Regulatory Affairs.

[FR Doc. 90-0817 Filed 4-5-90; 8:45 am]

BILLING CODE 3150-01-0

APPENDIX C

May 23, 1990

PUBLIC COMMENTS RECEIVED IN RESPONSE TO FEDERAL REGISTER NOTICE OF APRIL 6, 1990, CONCERNING REQUEST FOR COMMENT ON STUDY OF FEDERAL INFORMATION INVENTORY AND LOCATOR SYSTEMS

A = Federal agency
C = Congress
S = State/local Govt.

L = Library, academic, or nonprofit
P = Other private sector

NO.	TYPE	NAME AND ORGANIZATION
1	A	Michael A. Bronson, Dir., Off. Resources Mgmt, Farm Credit Administration, McLean, VA
2	L	Bryan Stack, Docs Librarian, University of Nebraska at Omaha, Omaha, Nebraska
3	A	Jean McKee, Chairman, Fed Labor Relations Authority, Washington, DC
4	A	David K. Jefferson, Chief, Info Systems Engineering Div., Natnl Computer Systems Laboratory, Natnl Insts. of Standards and Technology, Dept. Commerce, Gaithersburg, MD
5	P(A)	Bonnie C. Carroll, Pres., Information International, Oak Ridge, TN (reflects some CENDI views)
6	A	Earline Teasley, ETA, Dept. of Labor, Washington, DC
7	A	Henry E. Hockeimer, Assoc. Dir. for Mgmt., U.S. Information Agency, Washington, DC
8	A	Kenneth A. Fogash, Dep.Exec.Dir., Securities and Exchange Commission, Washington, DC
9	A	Donald C. Demitros, Dir., Off. Info Policies & Systems, Off. Asst. Sec. Admin., Dept. of Housing & Urban Development, Washington, DC
10	P	Andrew A. Aines, N. Springfield, VA
11	A	Roxanne Williams, OIRM, Office of Secretary, Dept. of Agriculture, Washington, DC
12	L	Cheryl R. Nyberg, U. of Illinois Law Library, Champagne, Ill., and Chair, Govt. Documents Special Interest Section, Amer. Assn. of Law Libraries, and Bruce Kennedy, Georgetown U. Law School Library, Washington, DC, and Chair, Govt. Relations Comm., AALL.
13	A	James C. Lafferty, Acting Dir. Communications and Legislative Affairs, Equal Employment Opportunity Comm., Washington, DC.
14	A	Otto T. Hall, IRM Officer, Consumer Product Safety Commission, Washington, DC
15	A	Robert W. Houk, Public Printer, Government Printing Office, Washington, DC
16	A	Frank M. Ramos, Assoc. Dep. Admin. for Mgmt & Administration, Small Business Administration, Washington, DC
17	A	James B. McCormick, Assoc. Managing Dir. for Information Mgmt., Federal Communications Commission, Washington, DC.

May 23, 1990

PUBLIC COMMENTS RECEIVED IN RESPONSE TO FEDERAL REGISTER NOTICE
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FEDERAL INFORMATION INVENTORY AND LOCATOR SYSTEMS

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C = Congress
S = State/local Govt.

L = Library, academic, or nonprofit
P = Other private sector

NO. TYPE NAME AND ORGANIZATION

18	L	Prudence S. Adler, Federal Relations Officer, Association of Research Libraries, Washington, DC
19.	L	Carol C. Henderson, Acting Dir. Washington Office, American Library Assn., Washington, DC
20	A	John L. Okay, Acting Dir., OIRM, Office of Secretary, Dept. of Agriculture, Washington, DC
21	A	Steven W. Broadbent, Dep. Asst. Sec. for Information Systems, Department of Treasury, Washington, DC
22	A	Col. Clinton A. Booth, Dep. Dir for Architecture, Office of Dir. of Information Systems for Command, Control, Communications, and Computers, Office of the Secretary of the Army, Dept. of Defense, Washington, DC
23	L	Sandy I Morton, Dir. Govt. Relations, Special Libraries Assn., Washington, DC
24	A	Thomas J. Collamore, Asst. Sec. for Admin., Dept. of Commerce, Washington, DC DRAFT
25.	A	Charles R. Tierney, Acting Assoc. Dir for Administration, Information and Facilities Mgmt., Department of Energy, Washington, DC

May 30, 1990

26	P	Thomas S. Shorebird, Archives of National Theater, Washington, DC
27	A	Jeff Fenstermacher, Asst. Director for Admin., National Science Foundation, Washington, DC
28	A	Lorin L. Goodrich, Dir., Office of Administration, International Trade Commission, Washington, DC
29	A	Dale G. Zimmerman, Dir. Legal and Administrative Services, Railroad Retirement Board, Chicago, IL
30.	L	Susan G. Hadden, Prof of Public Affairs, Univ. of Texas at Austin, Austin, TX
31.	L	Page Putnam Miller, Director, National Coordinating Committee for the Promotion of History, Washington, DC.
32.	L	Susan E. Tulis, Law School Library, University of Virginia, Charlottesville, VA, and Chair, Government Documents Round Table, American Library Assn.
33.	A	James E. Larson, Acting Dep. Asst. Sec for IRM, Dept. of Health and Human Services, Washington, DC.
34	A	Michael Doyle, Asst. Admin for Mgmt., Agency for International Development, Washington, DC

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S = State/local Govt.

L = Library, academic, or nonprofit
P = Other private sector

NO. TYPE NAME AND ORGANIZATION

35	L	John Chelen, Executive Director, The Unison Institute, Washington, DC.
36	L	Gary Bass, Exec. Dir., and David Plocher, Staff Attorney, OMB Watch, Washington, DC
37	A	Edward P. Walsh, Managing Dir., Federal Maritime Commission, Washington, DC
38	A	Edward G. Lewis, Asst. Sec. for IRM, Department of Veterans Affairs, Washington, DC

June 11, 1990

39	A	George P. Sotos, Acting Dir., OIRM, Dept of Education, Washington, DC
40	A	Neil J. Stillman, Dep. Asst. Sec for IRM, Department of Health and Human Services, Washington, DC

June 19, 1990

41	A	Thomas J. Collamore, Asst. Sec. for Admin., Department of Commerce, Washington, DC
42	A	Don W. Wilson, Archivist, National Archives and Records Admin., Washington, DC
43	A	Alvin Pesachowitz, Dir., Office of IRM, Environmental Protection Agency, Washington, DC
44	A	Robert W. Houk, Public Printer, Government Printing Office, Washington, DC

June 28, 1990

45	A	George L.B. Pratt, Exec. Dir., Federal Energy Regulatory Commission, Washington, DC
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